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THE

STUDY OF MEDICINE.

IN FIVE VOLUMES.

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THE

STUDY OF MEDICINE.

Second Edition.

BY

JOHN MASON GOOD, M.D. F.R.S. F.R.S.L.

MEM. AM. PHIL. SOC. AND F.L.S. OF PHILADELPHIA.

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CLASS IV.

CLASS IV.

NEUROTICA.

DISEASES OF THE NERVOUS FUNCTION.

ORDER I.

PHRENICA.

AFFECTING THE INTELLECT.

II.

ÆSTHETICA.

AFFECTING THE SENSATION.

III.

CINETICA.

AFFECTING THE MUSCLES.

IV.

SYSTATICA.

AFFECTING SEVERAL OR ALL THE SENSORIAL POWERS SIMULTANEOUSLY.

CLASS IV.

PHYSIOLOGICAL PROEM.

Class IV. The nervous function the highest of visible beings:

THE numerous and complicated train of diseases we are now entering upon appertains to the highest function of visible beings; the possession of which emphatically distinguishes animals from plants, and the perfection of which as emphatically distinguishes man from all other animals: these are the diseases of the NERVOUS FUNCTION;

embracing the powers of intellect, sensation, and muscular motion.

—which in the sphere of its activity, embraces the powers of intellect, sensation, and muscular motion. Each of these powers evinces diseases of its own, and will consequently lay a foundation for a distinct order, under the class before us. While, as there are also other diseases that affect several of them simultaneously, we become furnished with a fourth order, which will complete the series.

All dependent on the organ of the brain:

All these diversities of vital energy are now well known to be dependent on the organ of the brain, as the instrument of the intellectual powers, and the source of the sensific and motory. Though, from the close connexion and synchronous action of various other organs with the brain, and especially the thoracic and abdominal viscera, such diversities were often referred to several of the latter in earlier ages, and before anatomy had traced them satisfactorily to the brain as their fountain-head. And of so high an antiquity is this erroneous hypothesis, that it has not only spread itself through every climate on the

though formerly ascribed to other viscera.

Class IV. This ancient error still tinctures popular language.

globe, but still keeps a hold on the colloquial language of every people; and hence the heart, the liver, the spleen, the reins, and the bowels, generally, are, among all nations, regarded either literally or figuratively, as so many seats of mental faculties or moral feeling. We trace this common and popular creed among the Hebrews and Arabians, the Egyptians and Persians, the Greeks and Romans; among every savage, as well as every civilized tribe; nor is there a dialect of the present day that is free from it: and we have hence an incontrovertible proof that it existed as a doctrine of general belief at a time when mankind, few in number, formed a common family, and were regulated by common notions.

Corrected by the study of anatomy.

The study of anatomy, however, has corrected the loose and confused ideas of mankind upon this subject; and while it distinctly shows us that many of the organs popularly referred to as the seat of sensation, do and must, from the peculiarity of their nervous connexion with the brain, necessarily participate in the feelings and faculties thus generally ascribed to them, it also demonstrates that the primary source of these attributes, the quarter in which they originate, or which chiefly influences them, is the brain itself.

We are speaking, however, of man and the higher classes of animals alone; for, as the scale in animal life descends, the organ of a brain is perpetually diminishing in its bulk, till at length it totally disappears, and its place is supplied by other fabrications, as we shall have occasion to observe in the sequel of this introduction: which will lead us to take a brief notice of the following subjects:

I. THE GENERAL NATURE OF THE BRAIN, ITS RAMIFICATIONS AND SUBSTITUTES.

II. THE PRINCIPLE OF SENSATION AND MOTION.

III. THE INTELLECTUAL PRINCIPLE.

Natural figure and division of the brain.

I. In man, and those animals whose encephalon approaches the nearest to his in form, the brain is of an oval figure, surrounded by various membranes of different firmness and density, and consists of three principal di-

visions; the cerebrum or brain, properly so called, the cerebel or little brain, and the oblongated marrow. The first forms the largest and uppermost part; the second lies below and behind; the third lies level with the second and in front of it; it appears to issue equally out of the two other parts, and in turn to give birth to the spinal marrow; which may hence be regarded as a continuation of the brain communicating with its different parts by the aid of numerous commissures, the *querbander* of the German writers, and extended through the whole chain of the back-bone. They are similarly accompanied with a cineritious or ash-coloured substance which forms the exterior of the three first divisions, but the interior of the spinal marrow, and appears to derive its hue from the great number of minute vessels that appertain to it.

Class IV. I. Nature of the brain, its ramifications and substitutes.

According to Mr. Bauer's very delicate microscopic experiments, when the substance of the brain is made a subject of examination immediately after death "abundance of fibres", to adopt the words of Sir Everard Home in relating these experiments, "are met with in every part of it; indeed it appears that the whole mass is a tissue of fibres, which seem to consist entirely of an accumulation of globules whose union is of so delicate a nature that the slightest touch, even the mere immersion in water, deranges and reduces them to that mass of globules of which the brain appears to be composed when examined with less accuracy or under less favourable circumstances".—Mr. Bauer found that the globules of the brain, as well as those of pus, are exactly of the same size as those of the blood when deprived of their colouring matter*. And hence the doctrine of Prochaska†, and the Wensels‡, respecting the globular form of the ultimate particles of the brain, seems sufficiently confirmed.

Substance of the brain according to Bauer's examination with the microscope.

and the previous detection of Prochaska, and the Wensels.

* See Sir Everard Home's Croonian Lecture, Phil. Trans. for 1818.

† Opp. Min. Tom 1. p. 342.

‡ De Structurâ Cerebri, p. 84.

Class IV. I. Nature of the brain, its ramifications and substitutes. Muscular fibres what: and how produced.

Sir Everard Home from these microscopic disclosures, endeavours to show that muscular fibres are minute chains formed by an attachment of one globule of blood to another: and that vascularity in coagula or extravasated blood, or in granulations produced by pus, is effected by the escape of minute bubbles of carbonic acid gass from the living fluid; which hereby opens a path to a certain extent into the tenacious blood or pus that is extravasated or secreted.

Origin of nerves.

From this general organ arises a certain number of long, whitish, pulpy, strings, or bundles of fibres, capable of being divided and subdivided into minuter bundles of filaments or still smaller fibres, as far as the power of glasses can carry the eye. These strings are denominated nerves; they are surrounded, to their extremities, by one or more of the common membranes of the brain, and, by their various ramifications, convey different kinds or modifications of living power to different parts of the body, keep up a perpetual communication with its remotest organs, and give motivity to the muscles.

Reason of the division of the brain into distinct compartments not clearly known.

As the brain consists of three general divisions, it might, at first sight, be supposed that each of these is allotted to some distinct purpose; as, for example, that of forming the seat of intellect or thinking; the seat of the local senses of sight, sound, taste, and smell, and the seat of general feeling or motivity. The investigations and experiments of Mr. C. Bell, and M. Magendie, to which we shall presently advert, pave the way to some important doctrines in respect to a few of these points, but leave us quite in the dark in respect to various others; and particularly as to the source of intellect; while it is difficult to reconcile even the doctrines which have thus been fairly deduced with the motific, and even with the sentient motific powers that must exist in numerous cases of an extensive disorganization of the brain and in acephalous animals. The first and second nerves and the portio mollis of the seventh sufficiently attest their exclusive uses as nerves of the special senses; while the distribution of the greater part of the third, of the fourth, and of the

sixth nerves to voluntary muscles, which receive filaments from no other source, prove clearly that these nerves are voluntary nerves as well as conducive to muscular sensation. "Perhaps", says Mr. Herbert Mayo, "it is not unfair to argue analogically from the preceding instances that the same surface of the brain or spinal chord furnishes to each voluntary muscle of the body its voluntary and sentient nerves, *if the two are not identical*" *. There is in like manner reason for believing that the fifth nerve which, at its origin, consists of two portions, is not only a nerve of voluntary motion, but furnishes branches to the special senses, and even communicates general sensation to the muscular fibres; and that its gustatory twig is a nerve of both touch and taste at the same time.

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As the same nerve seems at times subservient to different purposes or different nerves to the same purpose.

Several of these phænomena may indeed be resolved, though not the whole, into that close interunion which some parts of the brain maintain with other parts by means of ganglions, commissures and decussations of nerves; whence injuries on one side are often accompanied with loss of motion or feeling in the organs of the other side. So the curious and ingenious, but, I fear, scarcely justifiable experiments, lately instituted by Dr. Philip †, and to which we shall have occasion to return presently, sufficiently prove that stimuli of a certain kind, as spirit of wine, applied to the posterior part of the naked brain of an animal, produce the same effect on the heart, and equally increase its action, as if applied to the anterior part. To affect the heart, however, it seems necessary that the stimulus should spread over a pretty large extent of the brain; so as to take in, by the range of its excitement, some of the ganglions of the brain, whose office, as Dr. Philip conceives, is "to combine the influence of the various parts of the nervous system, from which they receive nerves, and to send off nerves endowed with the combined influence of those parts" ‡. He hence accounts for some

* Anatomical and Physiological Commentaries, No. II. p. 1. 8vo. Lond. 1822.
† Phil. Trans. 1815. p. 5.—90.
‡ Phil. Trans. 1815. p. 436.

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organs of the frame being affected by every part of the nervous system, and others by only certain small parts of it: and the wide influence possessed by the great sympathetic nerve, which is less a single nerve than a string of ganglions. We are also hereby shown why the intestines, like the heart, sympathize with every portion of the nervous system.

From all this, however, it is clear that there is much yet to be learnt concerning the actual arrangement of the brain, or of its partition into three divisions, and of the respective share which the different parts take in producing a common effect: and consequently it seems to be altogether a wild and idle attempt to subdivide these perceptible regions of the brain into still smaller and merely imaginary sections, and to allot to each of them a determinate function and faculty.

fanciful to pretend subdivisions inscrutable to the senses and to endow them with hypothetical powers.

That a sensorial communication, however, is maintained between some part or other of the brain and every part of the body, and that this communication is conducted by the nerves, is unquestionable from the following facts:

The brain maintains a sensorial communication with the body by means of the nerves.

If we divide, or tie, or merely compress a nerve of any kind, the muscle with which it communicates becomes almost instantly paralytic; but upon untying or removing the compression the muscle recovers its appropriate feeling and irritability. If the compression be made on any particular part of the brain, that part of the body becomes motionless which derives nerves from the part compressed. And if the cerebrum, cerebellum, or medulla oblongata be irritated, excruciating pain or convulsions, or both, take place all over the body: though chiefly when the irritation is applied to the last of these three parts. For, according to the laws of the nervous action as collected from a variety of experiments by Dr. Philip *, and stated in a subsequent paper to that just referred to, "Neither mechanical nor chemical stimuli (irritating the brain by a knife, or pouring spirits of wine upon it) applied to the

* Phil. Trans. 1815. p. 444.

nervous system, excite the muscles of voluntary motion, unless they are applied near to the origin of the nerves, and spinal marrow."

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The nerves issue in pairs, one of each pair being allotted to either side of the body. The whole number of pairs is thirty-nine; of which nine rise immediately from the great divisions of the brain under which we have just contemplated it, and are *chiefly*, though not wholly appropriated to the four local senses; and thirty from the spinal marrow through the foramina of the bone that encases it, and are altogether distributed over the body to produce the fifth or general sense of touch and feeling, which powers, however, are by some physiologists regarded as distinct from each other, and to communicate, in an especial degree, irritability to the muscles.

Number and general character of the nerves.

We have thus far represented the spinal marrow as issuing from the brain, in conformity with the general doctrine that has hitherto been held upon the subject *. It has of late years, however, been contended by various physiologists, and particularly by Drs. Gall and Spurzheim, that the spinal marrow itself is the origin or trunk of the nervous system, and that instead of issuing from the brain, it gives birth to it. The argument is derived from the existence of a spinal marrow alone in acephalous monsters, and of a nervous chord without a brain, answering the purpose of a spinal marrow, in most invertebral animals. Whence it is inferred that the nervous column is the radical part of the system, and that the brain is an increment from it in the more perfect classes †.

Whether the spinal marrow issues from the brain, or the brain from the spinal marrow? the latter the opinion of Gall and Spurzheim.

Ground of their opinion.

The question is not of much importance, though there is something ingenious in thus tracing animal life from its simpler forms. Yet the opinion seems to be in direct opposition to a well-ascertained fact we shall have to

Opposed by facts and analogy.

* Anatomie du Cerveau, contenant l'Histoire de son developpement dans le fœtus avec une exposition comparative de sa structure dans les animaux, par A. J. Jourdan, &c. Paris, 1823.

† Anatomie et Physiologie du système nerveux, &c. par F. J. Gall et G. Spurzheim, 4to. Paris, 1810.

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advert to presently, namely, that the magnitude of the brain and the extent of its intellectual powers hold an inverse proportion to the size of the spinal marrow, and, consequently, upon this hypothesis, to their apparent means of supply. Nor is it the mode of induction usually adopted by physiologists on like occasions; since they generally describe the arteries as issuing from the heart, instead of giving rise to it, notwithstanding that the heart, like the brain, has been found totally wanting in some monsters, and the circulation carried on by an artery and a vein alone, of which Mr. Hewson gives a very singular instance*; and that most of the worm genera are equally without a heart though they are in possession of circulatory vessels. We only see in these arrangements that neither a brain nor a heart are essentially necessary to animal life: and that the great Author of nature is the lord, and not the slave, of his own laws; and is capable of effecting the same general principle by a ruder as well as by a more elaborate design.

System and ganglions of the intercostal nerve.

There is one part, however, of the system of nervous power in the more perfect classes of animals that is particularly worthy of our attention, as furnishing a rule peculiar to itself, and being without a parallel in any other part: and that is the origin, structure, and extensive influence of the great sympathetic or intercostal nerve, which forms a kind of system in itself, an epicycle within the two cycles of cerebral and vertebral influence. It is connected both with the brain and spinal marrow, and may be said to arise from either. Admitting the brain to be its source, it is an offset from the sixth pair of nerves, on either side, and in its course receives a small tributary twig from the fifth, and branches from all the vertebral, from whose union and decussation it is studded with numerous ganglions or medullary enlargements, of which there are not less than three in the neck alone tinted by an addition of cineritious substance, a larger number in its line through the chest, and others as it descends

* On the Lymph. Syst. Part II. p. 15.

still deeper, independently of various confluences of smaller branches that unite and form extensive net-works. Having reached the hollow of the os coccygis, it meets its twin from the opposite side which has pursued a similar course, and been augmented by similar contributions.

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Thus equally enriched with the nervous stores of the brain and the spinal marrow, it sends off radiations as it takes the course of the aorta, to all the organs of the thoracic, abdominal, and hypogastric regions, to the lungs, the heart, the stomach, and intestines, the bladder, uterus, and testes; and thus becomes an emporium of nervous commerce, and an instrument of general sympathy: and what is of infinite importance in so complicated a frame as that of man, furnishes to the vital organs streams of nervous supply from so many anastomosing currents, that if one, or more than one, should fail or be cut off, the function may still be continued. To this it is owing, in a very considerable degree, that the organs of the upper and lower belly, exhibit that nice fellowship of feeling which often surprises us, and that most of them are apt to sympathize in the actual state of the brain.

From its structure and extensive intercourse, an instrument of general sympathy.

There is no animal whose brain is an exact counterpart to that of man: and it has, hence, been conceived that by attending to the distinctions between the human brain and that of other animals, we might be able to unfold a still more mysterious part of the animal economy than that of sensation or motion, and account for the superior intellect with which man is endowed.

The human brain has no exact counterpart in other animals.

But the varieties are so numerous, and the parts which are deficient in one animal are found connected with such new combinations, modifications, and deficiencies in others, that it is impossible for us to avail ourselves of any such diversities.

But no reasoning on this ground concerning the superiority of the human intellect.

Aristotle endeavoured to establish a distinction by laying it down as a maxim, that man has the largest brain of all animals in proportion to the size of his body; a maxim which has been almost universally received from his own time to the present period. But it has of late years, and upon a more extensive cultivation of compara-

How compared with the brain by Aristotle.

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tive anatomy, been found to fail in various instances: for while the brain of several species of the ape kind bears as large a proportion to the body as that of man, the brain of several kinds of birds bears a proportion still larger. Sömmering has carried the comparison through a great diversity of genera and species *: but the following brief table will be sufficient for the present purpose. The weight of the brain to that of the body, forms

The comparison fails in various cases. Aristotle's maxim corrected by Sömmering:

In man from ..... $\frac{1}{22}$ to $\frac{1}{3}$ part
Several simiæ ..... $\frac{1}{22}$
Dog ..... $\frac{1}{101}$
Elephant ..... $\frac{1}{500}$
Sparrow ..... $\frac{1}{25}$
Canary-bird ..... $\frac{1}{14}$
Goose ..... $\frac{1}{300}$
Turtle (smallest) ..... $\frac{1}{3686}$

and thus corrected, holds universally.

M. Sömmering has hence endeavoured to correct the rule of Aristotle by a modification under which it appears to hold universally; and, thus corrected, it runs as follows: "man has the largest brain of all animals in proportion to the general mass of nerves that issue from it." Thus the brain of a horse gives only half the weight of that of a man, but the nerves it sends forth are ten times as bulky. The largest brain which M. Sömmering ever dissected in the horse kind, weighed only 1lb. 4oz. while the smallest he has met with in an adult man was 2lb. 5½oz.

Rule applies to animals in the general descent of the scale of animal life.

But the remark applies farther than to man: for this acute physiologist has been able to trace a direct proportion between the degree of intelligence in every class of animals, and the bulk of the brain, where the latter bears an inverse proportion to the nerves that arise from it. And we may hence observe, in passing, as indeed we have already hinted, that the nerves seem rather to be a product of the brain than the brain of the nerves: for it is much more easy to conceive how a fountain may become exhausted in proportion to the magnitude of its

* Diss. de basi Encephali. Götting. 1778. 4to.

streams, than how a reservoir can be augmented in proportion to the minuteness of its channels.

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Upon a general survey, I may observe that the nervous structure of all vertebral animals, comprising the first four classes of the Linnéan classification, mammals, birds, amphibials, and fishes, is characterized by the two following properties. Firstly, the organ of sense consists of a gland with a long chord or spinal marrow descending from it; and, secondly, that both are securely inclosed in a bony case or covering.

Distinctive character of the nervous structure of vertebral animals.

In man, as I have already observed, this gland is (with a few exceptions) larger than in any other animal in proportion to the size of the body; and, without any exception whatever, in proportion to the size of its dependent column.

In other animals even of the vertebral classes, or those immediately before us, we meet with every variety of proportion, from the ape which, in this respect, approaches nearest to that of man, to tortoises, and fishes, in which the brain does not much exceed the diameter of the spinal marrow itself.

In what respect varies as the scale descends.

It is not, therefore, to be wondered at that animals of a still lower description and without a vertebral column, should exhibit proofs of a nervous chord or spinal marrow without a gland or brain of any kind at the top; and that this chord should even be destitute of its common bony defence. And such is actually the conformation of the nervous system in insects, and, for the most part, in worms; neither of which are possessed either of a cranium or a spine; and in none of which we are able to trace more than a slight enlargement of the superior part of the nervous chord, or spinal marrow, as it is called, in animals possessing a spine; often consisting of one, and sometimes of two ganglions designed, apparently, to correspond with the organ of a brain; the descending column chiefly taking the course of the esophagus and surrounding it. The nervous chord, however, in these animals is proportionally larger than in those of a superior rank; and, though sometimes simple, as in molluscous worms, in

Nervous structure in invertebral animals.

Possess a nervous chord proportionally larger than invertebral animals, and enriched with ganglions.

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other cases, as in insects, is possessed at various distances of minuter ganglions or little knots, from which fresh ramifications of nerves shoot forth like branches from the trunk of a tree, and which may perhaps be regarded as so many distinct cerebels or little brains: having a close resemblance to the subordinate system of the intercostal nerve in man, as we have already traced it in its various ramifications and connexions.

Ganglions probably minute cerebels.

Whether a nervous structure in zoophytes and infusory animals?

In worms of apparently the simplest make, as zoophytes and infusory animals, no distinct structure can be discerned, and particularly nothing like a nervous system. The hydra or nearly transparent polypus found so frequently in the stagnant waters of our own country, with a body of an inch long, and arms or tentacles in proportion, seems, when examined by the largest magnifying glasses, to consist of a congeries of granular globules or molecules, not unlike boiled sago surrounded by a gelatinous substance; in some tribes solitary, in others catenated. And hence, whatever degree of sensation or voluntary motion exists in such animals can only be conceived as issuing from these molecules acting the part of nervous ganglions detached, or connected. And on this account M. Virey has elegantly divided all animals into three classes according to the nature of their nervous configuration; as first, animals with two nervous systems, a cerebral and sympathetic, including mammals and birds, amphibials and fishes. Secondly, animals with a sympathetic nervous system alone, surrounding the esophagus, as molluscæ and shell-fishes, insects and proper worms. And, thirdly, animals with nervous molecules, as echini, polypes, and infusory animalcules, corals, madrepores, and sponges; all which in M. Virey's classification are included under the term zoophytes.

Their peculiar make.

Virey's classification of animals from their supposed difference of nervous structure.

Touch the only sense common to all animals: hence supposed by Cuvier to be the base of the other senses.

The only sense which seems common to animals, and which pervades almost the whole surface of their bodies, is that of general touch or feeling; whence M. Cuvier, supposes that the material of touch is the sensorial power in its simplest and uncompounded state; and that the other senses are only modifications of this material, though pe-

caliarly elaborated by peculiar organs, which are also capable of receiving more delicate impressions *. Touch however, has its peculiar local organ, as well as the other senses, for particular purposes, and purposes in which unusual delicacy and precision are required; in man this peculiar power of touch is well known to be seated in the nervous papillæ of the tongue, lips, and extremities of the fingers. Its situation in other animals I shall advert to presently.

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Touch, though diffused generally, has its local organs as well as the other senses, when situated in man.

The differences in the external senses of the different orders and kinds of animals consist in their number and degree of energy.

All the classes of vertebral animals possess the same number of senses as man. Sight is wanting in zoophytes, in various kinds of molluscous, and articulated worms, and in the larves of several species of insects. Hearing does not exist, or at least has not been traced to exist, in many molluscous worms and several insects in a perfect state. Taste and smell, like the general and simple sense of touch, seem seldom to be wanting in any animal.

Vertebral animals the same number of external senses as man.

Number diminishes in the lower classes.

The local sense of TOUCH, however, or that which is of a more elaborate character and capable of being exercised in a higher degree, appears to be confined to the three classes of mammals, birds, and insects: and even in the last two it is by no means common to all of them, and less so among insects than among birds.

Local sense of touch confined to mammals.

In apes and macaucoes, constituting the quadrumana of Blumenbach, it resides partly in the tongue, and tips of the fingers as in man, but equally, and in some species even in a superior degree, in their toes. In the racoon (ursus *lotor*) it exists chiefly in the under surface of the front toes. In the horse, and cattle orders, it is supposed by most naturalists to exist conjointly in the tongue, and snout, and in the pig and mole to be confined to the snout alone; this however is uncertain; as it is also, though there seems to be more reason for such a belief, that in

Exists in different organs in different tribes.

In quadrupeds.

* Anatom. Comparat. t. 25.

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the elephant it is seated in the proboscis. Some physiologists have supposed the bristly hairs of the tiger, lion, and cat, to be an organ of the same kind; but there seems little ground for such an opinion. In the opossum (and especially the Cayenne opossum) it exists very visibly in the tail; and M. Cuvier suspects that it has a similar existence in all the prehensil-tailed mammals.

Blumenbach supposes the same sense to have a place in the same organ in the platypus or ornithorhyncus as he calls it, that most extraordinary duck-billed quadruped which has lately been discovered in Australasia, and, by its intermixture of organs, confounds the different classes of animals and sets all natural arrangement at defiance.

In various birds.

The local organ of touch or feeling in ducks and geese and some other genera of birds appears to be situated in the integument which covers the extremity of the mandibles, and especially the upper mandible, with which apparatus they are well known to feel for their food in the midst of mud in which they can neither see nor perhaps smell it.

Whether such a sense in amphibials and fishes or worms.

We do not know that amphibials, fishes, or worms possess any thing like a local sense of touch; it has been suspected in some of these and especially in the arms of the cuttle-fish, and in the tentacles of worms that possess this organ, but at present it is suspicion and nothing more.

In what organ it exists in insects?

In the insect tribes, we have much reason for believing such a sense to reside in the antennas or in the tentacles; whence the former of these are denominated by the German naturalists *fühlhorner* or feeling-horns. This belief has not been fully established, but it is highly plausible from the general possession of the one or the other of these organs by the insect tribes, the general purpose to which they apply them, and the necessity which there seems for some such organ from the crustaceous or horny texture of their external coat.

Taste and smell.

The senses of TASTE and SMELL in animals bear a very near affinity to the local sense of touch; and it is difficult to determine whether the upper mandible of the duck-tribe, with which they distinguish food in the mud, may

not be an organ of taste or smell as well as of touch; and there are some naturalists that in like manner regard the cirrous filaments or antennules attached to the mouths of insects as organs of taste and touch equally. Taste in the more perfect animals resides jointly in the papillæ of the tongue and the palate; but I have already had occasion to observe that it may exist, and in full perfection, in the palate alone, since it has been found so in persons who have completely lost the tongue from external force or disease.

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Seat of taste in the higher classes.

In animals that possess the organ of nostrils this is always the seat of smell; and in many quadrupeds, most birds, and perhaps most fishes, it is a sense far more acute than in man, and that which is chiefly confided in. For the most part it resides in the nerves distributed over a mucous membrane that lines the interior of the bones of the nostrils, and which is called the Schneiderian membrane, in honour of M. Schneider a celebrated anatomist, who first accurately described it. Generally speaking it will be found that the acuteness of smell bears a proportion in all animals to the extent of surface which this membrane displays; and hence in the dog, and cattle tribes, as well as in several others, it possesses a variety of folds or convolutions, and in birds is continued to the utmost points of the nostrils, which in different kinds open in very different parts of the mandible.

Nostrils the seat of smell where they exist.

Differs in intensity in different animals, and why.

The frontal sinuses, which are lined with this delicate membrane, are larger in the elephant than in any other quadruped, and in this animal the sense is also continued through the flexible organ of its proboscis. In the pig the smelling organ is also very extensive; and in most of the mammals possessing proper horns it ascends as high as the processes of the frontal bone from which the horns issue.

It is not known that the cetaceous tribes possess any organ of smell; their blowing-holes are generally regarded as such; but the point has been by no means fully established. We are in the same uncertainty in respect to amphibials and worms; the sense is suspected

Whether the cetaceous tribes possess smell?

Whether amphibials or worms.

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to exist in all the former, and in several of the latter, especially in the cuttle-fish; but no distinct organ has hitherto been traced out satisfactorily.

Possest by fishes, and very acutely.

In fishes there is no doubt; the olfactory nerves are very obviously distributed on an olfactory membrane, and in several instances the snouts are double, and consequently the nostrils quadruple, a pair for each snout. This powerful inlet of pleasure to fishes often proves fatal to them from its very perfection; for several kinds are so strongly allured by the odour of marjorum, assafœtida and other aromas, that by smearing the hand over with these substances, and immersing it in the water, they will often flock towards the fingers, and in their intoxication of delight may easily be laid hold of: and hence the angler frequently overspreads his baits with the same substances, and thus arms himself with a double decoy.

Possest by insects, but the organ not known.

There can be no doubt of the existence of the same sense in insects, for they possess a very obvious power of distinguishing the odorous properties of bodies even at a considerable distance beyond the range of their vision: but the organ in which this sense resides has not been satisfactorily pointed out; Reimar supposes it to exist in their stigmata, and Knoch in their anterior pair of feelers.

Hearing, its general organ the ear, though not always.

The general organ of HEARING is the ear, but not always so; for in most of those who hear by the Eustachian tube only, it is the mouth; in the whale tribes it is the nostrils or blow-hole. It is so, however, in all the more perfect animals, which usually for this purpose possess two distinct entrances into the organ, a larger and external surrounded by a lobe; and a smaller and internal opening into the mouth. It is this last which is denominated the Eustachian tube. The shape of the lobe is seldom found even in mammals similar to that in man, excepting among the monkey and the porcupine tribes.

Eustachian tube.

External organ varies in different kinds.

In many kinds there is neither external lobe nor external passage. Thus in the frog, and most amphibious animals, the only entrance is the internal or that from the mouth; and in the cetaceous tribes the only effective entrance is probably the same kind; for, though these may be said to

possess an external aperture, it is almost imperceptibly minute. It is a curious fact that, among the serpents, the blind-worm or common harmless snake is the only species that appears to possess an aperture of either sort; the rest have a rudiment of the organ within, but we are not acquainted with its being pervious to sound.

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Serpents generally destitute of a hearing organ.

Fishes are well known to possess a hearing organ, and the skate and shark have the rudiment of an external ear; but like other fishes they seem chiefly to receive sound by the internal tubule alone.

Fishes hear, and some have an external organ.

That insects in general hear is unquestionable, but it is highly questionable by what organ they obtain the sense of hearing. The antennas, and perhaps merely because we do not know their exact use, have been supposed by many naturalists to furnish the means; it appears fatal, however, to this opinion to observe, that spiders hear though they have no true antennas, and that other insects which possess them naturally seem to hear as correctly after they are cut off.

Insects hear, but the organ uncertain.

Sight: its organ greatly varies in different classes.

The sense of VISION exhibits perhaps more variety in the different classes of animals than any of the external senses. In man, and the greater number of quadrupeds it is guarded by an upper and lower eye-lid; both of which in man, but neither of which in most quadrupeds are terminated by the additional defence and ornament of cilia or eye-lashes. In the elephant, opossum, seal, cat-kind, and various other mammals, all birds, and all fishes we find a third eye-lid, or nictitating membrane as it is usually called, arising from the internal angle of the eye and capable of covering the pupil with a thin transparent veil either wholly or in part, and hence of defending the eyes from danger in their search after food. In the dog this membrane is narrow, in oxen and horses it will extend over half the eye-ball; in birds it will easily cover the whole; and it is by means of this veil, according to Cuvier, that the eagle is capable of looking directly against the noon-day sun. In fishes it is almost always upon the stretch, as in their uncertain element they are exposed to more dangers than any other animal. Ser-

Nictitating membrane, its use.

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pents have neither this nor any other eye-lid; nor any kind of external defence whatever but the common integument of the skin.

Largest proportioned eye. Smallest.

The largest eyes in proportion to the size of the animal belong to the bird tribes; and nearly the smallest to the whale; the smallest altogether to the shrew and mole; in the latter of which the eye is not larger than a pin's head.

Iris.

The iris, with but few exceptions, partakes of the colour of the hair, and is hence perpetually varying in different species of the same genus. The pupil exhibits a very considerable, though not an equal, variety in its shape. In man it is circular; in the lion, tiger, and indeed all the cat kind, it is oblong; transverse in the horse and in ruminating animals; and heart-shaped in the dolphin.

Pupil: shape varies in different classes. Position of the eyes varies.

In man, and the monkey tribes, the eyes are placed directly under the forehead; in other mammals, birds, and reptiles more or less laterally; in some fishes as the genus pleuronectes, including the turbot and flounder tribes, both eyes are placed on the same side of the head; in the snail they are situated on its horns, if the black points on the extremities of the horns of this worm be real eyes,

Spiders multoculate.

of which, however, there is some doubt; in spiders the eyes are distributed over different parts of the body, and in different arrangements, usually eight in number, and never less than six.

Eyes of sepia.

The eyes of the sepia have lately been detected by M. Cuvier; their construction is very beautiful, and nearly as complicated as that of vertebrated animals*.

Polypes and zoophytes perceive light, though apparently without eyes.

Polypes and several other zoophytes appear sensible of the presence of light, and yet have no eyes; as the nostrils are not in every animal necessary to the sense of smell; the tongue to that of taste, or the ears to that of sound. A distinct organ is not always requisite for a distinct sense. In man himself we have already seen this in regard to the sense of touch, which exists

* Le Règne Animale distribué d'après son Organization, 4 Tomes. 8vo. Paris, 1817.

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both locally and generally; the distinct organ of touch is the tips of the tongue and of the fingers, but the feeling is also diffused, though in a subordinate and less precise degree, over every part of the body. It is possible, therefore, in animals that appear endowed with particular senses without particular organs for their residence, that these senses are diffused, like that of touch, over the surface generally; though there can be no doubt that, for want of such appropriate organs, they must be less acute and precise than in animals that possess them.

The sense probably general but dull as that of general touch.

Whether there be any other than the five senses common to man and the higher classes of animals may be reasonably doubted, but we occasionally meet with peculiarities of sensation that can hardly be resolved into any of them. Thus the bat appears to be sensible of the presence of external objects and obstructions that are neither seen, smelt, heard, touched, or tasted: for it will cautiously avoid them when all the senses are purposely closed up. And hence many naturalists have ascribed a sixth sense to this animal. It is equally difficult by any of the known senses of fishes or of birds to account for the accuracy with which their migratory tribes are capable of steering their annual course through the depths of the ocean or the trackless regions of the atmosphere, so as to arrive at a given season on a given coast or a given climate, with the precision of the expertest mariner. Whilst with respect to mankind themselves we sometimes meet with persons who are so peculiarly affected by the presence of a particular object that is neither seen, smelt, tasted, heard, or touched as not only to be conscious of its presence, but to be in great distress till it is removed. The presence of a cat not unfrequently produces such an effect; and the author has himself been a witness of the most decisive proofs of this in several instances. It is possible that the peculiar sense may, in such cases, result from a preternatural modification in some of the branches of the olfactory nerve, which may render them capable of being stimulated in a new and peculiar manner; but the individuals thus affected are no

Whether any tribe possesses other senses than the five common. Suspected in the bat.

Whether in migratory birds or fishes?

Whether even in man?

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more conscious of an excitement in this organ of sense than in any other: and, from the anomaly and rare occurrence of the sensation itself, find no terms by which to express it.

In Germany it has of late been attempted to be shown that every man is possessed of a sixth sense, though of a very different kind from those just referred to; for it is a sense not only common to every one, but to the system at large; and consists in that peculiar kind of internal but corporeal feeling respecting the general state of one's health that induces us to exult in being as light as a feather, as elastic as a spring; or to sink under a sense of lassitude, fatigue, and weariness, which cannot be accounted for, and is unconnected with muscular labour or disease. To this sensation M. Hubner has given the name of cœnesthesis, and several of his compatriots that of *selbstgefühl*, and *gemeingefühl*, "*self-feeling* or *general-feeling*;" and its organ is supposed to exist in the extremities of all the nerves of the body, except those that supply the five external senses*. I scarcely know why these last should have been excepted: for the sensation itself is nothing more than a result of that general sympathy which appears to take place between different organs and parts of the body, expressive of a pleasurable or disquieting feeling according as the frame at large is in a state of general and uninterrupted health or affected by some cause of disquiet.

II. Principle of sensation and motion.

II. As the nerves thus generally communicate with each other, and with the brain where this organ exists, it has been a question in all ages by what means they maintain this communication, and what is the nature of the communicated influence? or, in other words, what is the fabric of the nerves, and the quality of the nervous power?

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* Comment. de Cœnesthesi. Dissert. Aug. Med. Auct. Chr. Fred. Hubner, 1794.

Nature and Origin of Mental Derangement, by A. Crichton, M. D. 2 vols. 8vo. 1798.

Class IV. II. Principle of sensation and motion.

Upon these points two very different opinions have been entertained from an early period of the world, which under different modifications have descended to our own times: for by many physiologists, both ancient and modern, the nerves have been regarded as solid capillaments, or tense and elastic strings, operating by tremors or oscillations, like the chords of a musical instrument; and by others as minute and hollow cylinders conveying a peculiar fluid. The word NERVE, which among the ancients was applied to tense chords of every kind, and especially to bow-strings and musical strings, affords a clear proof how generally the former of these hypotheses prevailed among the Greeks. It was not, however, the hypothesis either of Hippocrates or Galen; for by them, while the nerves were regarded as the instruments of sensation and motion, the medium by which they acted was supposed to be a fine etherial fluid, elaborated in the organ of the brain; to which they gave the name of animal spirit, to distinguish it from the proper fluid of the arteries which was denominated vital spirit. "Not", says Galen, "that this animal spirit is of the substance of the soul, but its prime agent while inhabiting the brain"*. But with respect to the manner in which the animal spirit operates upon the nerves they spoke with great modesty; for though they thought they had been able to trace a tubular form in some of the nerves, and particularly those of vision, they had not been able to succeed in others. And hence, says Galen, "it is impossible for us to pronounce absolutely and without proof, whether a certain power may not be transmitted from the brain through the nerves to the different members; or whether the material of the animal spirit may not itself reach the sentient and moving parts; or, in some way or other, so enter into the nerves as to induce in them a change which is afterwards extended to the organs of motion"†.

Nervous fabric, whether solid chords or hollow cylinders.

Original meaning of the term nerve.

Hypothesis of Hippocrates and Galen;

supposed an etherial fluid;

but expressed themselves uncertain how it maintained a communication with the rest of the body.

* De Hippocratis et Platonis Decretis, Lib. VII. A. Tom. I. p. 967. Ed. Basil. 1542.

† Id. Sect. C. p. 969.

CLASS IV. II. Principle of sensation and motion.

The question still in an unsettled state.

In a state not much less unsettled, remains the subject at the present moment. Dr. Hartley, in the beginning of the seventeenth century, revived the hypothesis that the nerves are bundles of solid capillaments conveying motion, sensation, and even perception, by a vibratory power, and supported his opinion with great ingenuity and learning *; but the opposite hypothesis that they are minute tubes filled with the animal spirit of the Greek physiologists, had acquired so extensive a hold ever since the discovery of the circulation of the blood, which presupposes the existence of tubular vessels too subtle to be traced by the senses, that it never obtained more than a partial and temporary assent; and hence, from the times of Sydenham and Boerhaave almost down to our own day the last has been the popular doctrine; is to be traced in the general tenour of medical writings; and has been especially maintained by Sabatier and Boyer.

Hartley's hypothesis of vibratory strings,

not able to subvert the hypothesis of Sydenham and Boerhaave that they are hollow cylinders conveying an animal spirit.

Nervous fibres unadapted to vibrations, as inelastic: yet no proof of their being tubular.

In effect, no fibres of the animal frame can be less adapted to a communication of motion by a series of vibrations than those of the nerves, since none exhibit a smaller degree of elasticity; and though we have little reason to confide in their tubular structure, or to believe that any kind of fluid is transmitted in this way, the close affinity which the nervous power is now known to hold with several of the gasses that chemistry has of late years unfolded to us; and the wonderful influence which some of them possess over the moving fibres of the animal frame, seem to leave no question that the nervous power itself is a fluid, though not, perhaps, of their precise nature, yet resembling the most active of them in its subtilty, levity, and rapidity of movement. Nor is there upon this supposition any difficulty in conceiving of its transmission by solid fibres or capillaments of a particular kind, the *neurilemma* of Bichat, whilst we behold the etherial fluids, now referred to, transmitted in the same way by substances still more solid and unporous.

Little doubt however of a nervous and peculiar fluid;

which, like various gasses, does not stand in need of hollow vessels for its transmission.

But there is another question, closely connected with

* Observations on Man, his frame, &c. his duty, and his expectations. 2 vols. 8vo. 1749.

the present subject, that has also greatly interested physiologists both in ancient and modern times, and is not yet settled in a manner altogether satisfactory.

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It has appeared that the nerves are instruments both of sensation and motion. Are these two effects produced by the same nervous fibres or by different? or by the same fluids or by different? That there must be two distinct kinds of fibres, or of fluids, is clear, because, as we shall have more particularly to observe when we come to treat of paralysis, the muscles of a limb are sometimes deprived of both sensation and motivity at the same period, sometimes of sensation alone while motivity continues, and sometimes of motivity alone while sensation continues. And hence Hippocrates and Galen, the last of whom has treated of the subject with great minuteness in many of his writings, while they speak of only one kind of animal spirit, speak of two kinds of nerves, those of sense and of motion; equally issuing from the brain, and mostly accompanying each other, and forming parts of the same organs.

Whether sensation and motion a common power, or from distinct sources? The two effects must proceed from distinct fibres of fluids. According to the Greeks, from distinct sets of fibres operated upon by the same nervous fluid.

This distinction is supported by the concurrent observations and experiments of physiologists, and especially by the curious investigations of many of those of our own day, among whom should be particularly noticed the names of Fleurens, Rolando, Charles Bell, Magendie and Shaw. M. Rolando attempted to show by a long train of interesting, but very painful, and hence unjustifiable experiments, carried on through animals of almost every kind, that the cerebrum is the ordinary source of sensation, and the cerebellum of motion: for, according to his observations, in every instance in which the former is much broken down, or in any other way injured, drowsiness, stupor, or apoplexy, is sure to follow; the animal being still capable of exercising locomotive power, but without any guidance or knowledge of what it is about, or where it is moving to. But the moment the cerebellum is wounded, the locomotive power is instantly lost*. These

How far supported by modern physiologists.

Rolando's distinct province of cerebrum and cerebellum.

* Saggio sopra la vera Struttura del Cervello, &c. e sopra le Fonzioni della Sistema Nervosa. Sassari, 1809.

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investigations were valuable as leading on to others more accurately conducted and followed up by more correct conclusions. That these distinct portions of the brain are endowed with separate powers, as observed by Rolando, has been sufficiently ascertained by other pathologists; and especially by M. Fleurens*, who does not seem, at the time to have been acquainted with Rolando's experiments, and consequently gives us the weight of an unconnected testimony. But it seems to have been better established, as M. Magendie remarks†, since these experiments, that the converse of M. Rolando's constitutes the law and order of nature: for sensation seems now proved to be dependent upon the cerebellum, instead of upon the cerebrum, while motivity takes its rise from the cerebrum instead of from the cerebellum.

Such separate powers since confirmed, but conversely ascribed.

Followed up by C. Bell into the spinal marrow.

His demonstration.

Double chord of the spinal chain.

Like mechanism continued to every part of the body.

Mr. Charles Bell has successfully followed up these distinct and established powers of the two departments of the brain‡, into the spinal marrow, which he has sufficiently proved to consist of a double chord; an anterior connected with the crura of the cerebrum, and productive of locomotion, and a posterior connected with the crura of the cerebellum, productive of sensation. And he has further shown that these two distinct powers are communicated to every part of the body by nervous fibres according as they issue from the one or the other of these respective channels: that, for the most part, every nervous fascicle distributed over the body and limbs, has a double origin, and issues equally from both the anterior and posterior trunk of the spinal medulla; and is consequently alike sensific and motific: while those which proceed from one alone, are limited in their power to the peculiar property of their source, of which the portio dura of the seventh nerve affords a striking example: being, when uncombined, simply a nerve of motion, without the

Strikingly exemplified in the portio dura of the seventh nerve.

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* Archives Générales de Médecine, I. II.

† Experiences sur les Fonctions, &c. Journ. de Physiologie, Tom. II, III. passim, 1822, 1823.

‡ Idea of the Anatomy of the Brain. 1609.

attribute of sensation, but exercising motion over all the organs of the face that are connected with the function of respiration, whether in the cheeks, lips, and nostrils; and hence operating equally in the acts of speaking, singing, sucking, drinking, spitting, coughing, and sneezing. And he has confirmed these discoveries by the striking fact, that the nerves of the head, which issue like the spinal medulla, from both departments of the brain, possess the same double power, and are, in like manner, nerves of sensation and motion; of which the fifth pair offers a notable example, bestowing at the same time sensibility on the head and face, and performing various muscular motions common to all animals: so as to be analogous to a double spinal nerve, or rather to the spine itself, and enriched, like the spine, with ganglions in particular parts. Many of these experiments have since been repeated, and the results to which they have thus led, though in some respects opposed by other experiments of M. Fodere *, have generally been confirmed by M. Magendie, Mr. Shaw, Mr. Broughton, and various other anatomists: and we hence see the reason of those frequent decussations, and other interunions of nerve with nerve, by which those possessing a single origin, and consequently a single property, hereby exchange filaments, and become enriched with a new power, the respective filaments being enveloped in the same sheath.

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Confirmed by contemporary experimenters.

There is much, however, in this recondite subject, that still requires elucidation; and particularly in regard to that continuation of sense and motion, in many cases which we shall hereafter have to notice, in which the brain, through a very considerable extent, both in its white and cineritious substance, has been found in a mollescent or pulpy state; often indeed entirely disorganised, and as soft as soap; while, in other instances, the spinal marrow, through an extent of six or seven inches in length, has been found equally dissolved, and its chain completely destroyed; one set of limbs being rendered rigid and mo-

Much elucidation still required respecting the continuance of these powers in a disorganized state of brain or spinal marrow.

* Recherches Experimentales, &c. Journ. de Physiologie. Juillet, 1823.

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tionless, with an augmented sensibility, at the same time that the sensation and mobility of the rest have been scarcely interfered with. And hence a separate and specific power has, from an early age, been ascribed to the nervous fibres themselves, while the brain has been contemplated as their radix. This, in truth, was the peculiar hypothesis of Glisson, and nearly so of Haller, with respect to the motory power; and Girtanner, who trod in the same footsteps, with a clear and comprehensive mind, considerably enlarged upon it, and gave to the moving energy the name of VIS INSITA, as, by way of distinction, he applied that of VIS NERVEA to the energy or power of feeling. And as he believed that other organs besides muscles, and indeed plants as well as animals, are possessed of fibres endowed with the same power, and that a brain is by no means essential for their production, he, in like manner, changed the name of muscular to that of irritable fibre; and contended that a principle of irritability is common to fluids as well as to solids, and co-extensive with organized nature*.

Hypothesis of Glisson, Haller, and Girtanner.

Vis insita as contradistinguished from vis nervea. Why called irritable fibre.

By what means these fibres unite into solid masses or hollow coats, and what are their respective powers when thus complicated, shall be glanced at hereafter†; at present, we must confine ourselves to their actuating principle, whatever that may consist in.

Oxygene conceived to be its principle,

Oxygene was at this time the popular aura of the philosophers, as caloric had been a short time before. Lavoisier had just proved its close connexion with several of the vital functions, and hence the chemical divinity of Girtanner was oxygene. He paid unbounded homage to its influence, attempted to show that irritability, and even life itself, are dependent upon it; and that in the animal system it is distributed to every part by means of the circulating blood.

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* Mémoires sur l' Irritabilite, considérée comme principe de vie dans la nature organisée. Journ. de Phys. 1790.

† See the introductory remarks to Order III. of the present class, NEUROTICA, CINETICA.

and galvanic fluid since its discovery. Discovery of the last nearly anticipated half a century before.

But the still more striking properties of the galvanic fluid, began now to be discovered and to captivate the general attention; and the time drew nigh in which oxygene was doomed to fall as prostrate before the shrine of Galvanic aura as caloric had fallen before that of oxygene. And it is curious to remark, how nearly this discovery was not only made but completed in all its bearings, and by the very same means, about fifty years before the attention of Galvani was directed to the subject; for as we are told in the Philosophical Transactions for 1732*, that the Queen's physician, Dr. Alexander Stuart, being engaged in a course of experiments upon the frog, observed upon thrusting the blunt end of a probe into the spinal marrow, after decapitation, that the muscles of the animal's body were thrown into convulsive contractions; and that the same happened to the muscles of the head when the probe was thrust into the brain. And by additional experiments he advanced so far as to infer that what the nerves contribute in muscular motion, cannot be produced by oscillations or elasticity, but must be owing to a fluid contained in them; but which fluid he was unfortunate enough to conceive was a pure and perfectly defecated elementary water; using the word water, however, in a general sense, as merely opposed to sal volatile, or fermented spirits, which he thought the term animal spirits was calculated to import.

Whatever be the nature of the active and etherial fluid which was thus traced by Stuart, and has since been fully established by Galvani, there can be no question of its having a powerful influence upon many branches or divisions of the nervous system, though not upon all. Its effects upon the muscles of an animal for some hours after death are too well known to be particularized: and Dr. Philip seems to have shown, by various trains of experiments †, that it is equally capable of maintaining respira-

Has a close affinity with the nervous influence; but not proved to be the same.

* Vol. XXXVII. p. 324.

† Phil. Trans. 1815. p. 5—90.

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tion, and the operation of several of the animal secretions, especially those that induce digestion, for as long a period. But in drawing from such facts the corollary that the "IDENTITY of galvanic electricity and nervous influence is established by these experiments"; he seems, like those who have anticipated him in the same doctrine, to proceed farther than he is warranted: for we have no right to say more than that galvanic electricity is a stimulus exciting the nervous influence into a state of continued secretion, or continued action; which may possibly be done by various other stimuli, as well as by that of galvanism.

Fanciful and complicated conjecture of Rolando.

M. Rolando, however, has proceeded farther than this; for while he regards the nervous fluid and that of galvanism as identic, he contemplates the cerebellum and its appendages as a galvanic machine in which the cerebellum itself constitutes the formative pile, the medulla oblongata, the conductor in which the fluid is accumulated, and the spine and nerves the channels through which it is conveyed to the muscles for the purpose of exciting *voluntary motion*. But this puts us into possession of only one half of the powers of the brain,—the *motific*. For the *sensific* powers, M. Rolando has revived the old doctrine of vibrations, already noticed, and conceives that all sensations are commenced at the extremities of the nerves, and are conveyed from the circumference to the centre of the system by vibrating chords *.

Result of the inquiry. Nervous system differently elaborated but a secernent organ: possesses two or more sets of fibres, secreteries or conductors of different fluids or modifications of a common fluid.

Upon the whole the nervous system seems to present itself, in the different classes of animals, under various scales of elaboration; but in every scale to be a secernent organ through its entire range; operating by means of two or more different sets of fibres, which may be secretories or conductors of as many different fluids or modifications of the same fluid.

In the higher and more complicated classes of animals it consists of a cylindrical chord, or spinal marrow, a central or ganglionic compages and a brain, all communicat-

* Coster, Archives Générales de Médicine, Mass, 1823.

ing and acting in harmony *. In some of the inferior classes we find the cylindrical chord alone, and in others the ganglionic compages: while in the lowest of all we trace a variety of distinct and granular molecules, which seem to act the part of nervous ganglions, though we cannot discover their connexion.

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The brain has so much of the general structure and character of a gland, as to be admitted to be an organ of this kind almost without a dissentient voice in the present day. This is a point conceded even by Dr. Cullen, notwithstanding that by supposing the energy of the brain to be a mere quality rather than a specific essence, and to be incapable of undergoing any change of recruit or exhaustion, he finds no adequate use for its glandular conformation. As we are justified, however, by all the force of analogy in regarding it as a gland, though unquestionably a gland of a peculiar kind, and as we are equally justified on the same ground of analogy in regarding the nervous power or energy by which it maintains a communication with every part of the system, as a fluid of a peculiar kind, we are almost driven to the necessity of contemplating it as the source from which this fluid issues and by which it is supplied as it becomes exhausted. And more especially when we reflect upon the enormous proportion of blood which is sent from the heart to the head, as the most extensive laboratory of the entire frame, and which, according to Haller †, amounts to one-fifth, or or on the lower estimate of Monro ‡, to one-tenth of the entire current poured forth from the left ventricle of the heart, while it is well known that the weight of the human brain is not more than one-fortieth part of the entire body.

Brain generally admitted to be a gland.

Cullen's hypothesis.

It is probable that the nervous fluid on its first secretion and in its simplest state, is as homogeneous as that of the blood; but that, like the blood, it becomes changed by

Nervous fluid at first perhaps homogeneous;

* De Nervi Sympathetici humani fabricâ, usû, et morbis, &c. Auctore J. Lobstein, Parisiis, 1823.

† Elem. Physic. x. v. 20.

‡ On the Nervous System. p. 8.

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particular actions, either of the particular parts of the brain, or of particular nerves themselves, into fluids possessing different powers, and capable of producing very different effects. And as modern experiments have induced us to believe with Galen, that the nerves are a continuation of the matter of the brain *, it is not improbable that many or all of them are endowed with something of its secernent power, and are capable of assisting in the secretion of the same fluid in its simplest state, or in some of its simpler modifications. And we may hence see the reason of that complicated mechanism which distinguishes the higher classes of animals, and how it is possible for a nervous system to exist, though with inferior powers, under a less composite fabrication.

afterwards changed by particular actions and rendered capable of producing different effects.

Nervous fibres a continuation of the matter of the brain, and hence probably themselves secernent:

whence a nervous system may exist under a comparatively rude fabrication.

This, however, is not mere conjecture: for in acephalous and anencephalous monsters we are compelled to admit it as a fact; and in different ramifications of the nerves, we can trace such different effects actually produced; and as it has sufficiently appeared that the operative power is a quick and subtle fluid, we are directly led to conclude that such difference of effects must depend on a diversity of fluids or on various modifications of a common fluid in different trunks or ramifications: the last of which explanations is by far the simplest and easiest.

Proofs of this.

Hence sometimes a sensific power and sometimes a motory.

And hence, in certain parts of the system, the nervous influence becomes capable of producing the effect of sensation; in others of motion. And hence, again, the sensific influence is rendered capable of exciting in one set of organs a sense of sight, in others of hearing, smell, or taste, while that of touch is diffused over the surface generally.

This view accordant with Hunter's remarks.

This last by its extensive diffusion is, by Mr. Hunter, called *common sensation;* and his view of the subject is in perfect consonance with the present. "It is more than probable," says he, "that what may be called organs of sense (local organs) have particular nerves whose mode of action

* De Hippocr. et Plat. Decret. Lib. III. Tom. I. p. 921.

is different from that of nerves producing common sensation; and also different from one another; and that the nerves on which the peculiar functions of each of the organs of sense depend are not supplied from different parts of the brain. The organ of sight has its peculiar nerve: so has that of hearing; and probably that of smelling likewise: and on the same principle we may suppose the organ of taste to have a peculiar nerve, although these organs of sense may likewise have nerves from different parts of the brain; yet it is most probable such nerves are only for the common sensations of the part, and other purposes answered by nerves" *.

Class IV. II. Principle of sensation and motion.

We see farther that for the purpose of elaborating the exquisitely fine and active fluid that, differently modified, excites the local organs of sense, and excites them in perfection, it is necessary that the nervous system should exist in its highest scale of fabrication, and be crowned with the apparatus of a brain, though this is not the only use to which the brain is subservient: and hence it was long ago pointed out by Galen, that it is from the brain alone the nerves appropriated to the local senses take their rise †. For though we have instances of the existence of a few of these senses where the nervous system is found in a less finished form, they are never complete in number, nor apparently in acuteness.

A brain necessary where all the local senses are complete and perfect.

The sense of touch, on the contrary, which, as we have already observed, is regarded by Cuvier as produced by the sensific fluid in its simplest and least compounded state, or as Galen has it ‡ "is the dullest and rudest of all the sentient powers", flows for the most part, as the latter has also remarked, from the spinal marrow alone, since it is from this column that the nerves of touch almost exclusively arise. And hence we have little difficulty in conceiving how a sense of this kind may exist in moluscæ, shell fishes, and the larves of insects, which have no

Not necessary where only a general sense of touch.

* On the Animal Economy, p. 261.

† De Instrumentis Odoratûs. Edit. Basil. Tom. I. p. 381.

‡ Loco citat.

Class IV. II. Principle of sensation and motion.

other nervous system than a medullary column, with a slight increment at the upper extremity, or no increment whatever; and have no other sense, or none but in a very imperfect degree.

Motific, or irritative power of a lower description than sensific.

The nervous power producing motion, and which has properly been denominated irritative, appears to be of a still lower description than that of touch. It is hence common to the great mass of muscular fibres, and is probably capable of being secreted by these fibres generally; so that every fibre supplies itself, where it receives no supply from any other source. Yet the proper source or reservoir of this modification of nervous fluid seems to be a ganglionic system; that which, in the higher classes of animals we have already noticed as formed by the curious structure and ramifications of the intercostal nerve, and that which appears to be a copy of it in worms and zoophytes, who have no other nervous organization whatever. From the copiousness with which this central system furnishes a recruit to the involuntary organs with which it is peculiarly connected in mammals, we may see why these organs are able to persevere in one uninterrupted train of action, without exhaustion or weariness from the beginning to the end of life; and why several of them, as the heart, the lungs, and the stomach, should be able to exhibit proofs of irritative power for a considerable period of time after the death of the system, and especially when roused by particular stimulants. Fishes in general have few pretensions to this structure, and hence they die sooner than most other animals, and exhibit little muscular irritability afterwards. Yet it is remarkable that in those genera which make the nearest approach to a ganglionic system, as the cod and carp, we have examples of a like power. The fish-mongers of the metropolis have taken advantage of this endowment in the cod-kind, and introduced the fashion of crimping or corrugating the flesh, by the stimulus of transverse incisions; and in some curious experiments on the carp, lately instituted by Mr. Clift, he found its heart leaping, when out of water, four hours

Hence the involuntary organs neither exhausted nor wearied.

Hence an exhibition of irritative power after death.

Strikingly exemplified.

Crimping of cod-fish.

Singular instance in carp.

after a separation from the body *. If the apparently isolated molecules found in the make of the polype and various worms are ganglions of nervous irritation, extending their vital influence through certain ranges or peripheries, we are also hence enabled to account for the peculiar tenacity with which the principle of life adheres to them, and the wonderful power of reproduction which belongs to detached segments.

Class IV. II. Principle of sensation and motion. Hence spontaneous production of polypes and worms: and propagation by sections.

The curious and striking experiments which have lately been made upon animals by Dr. Philip and M. Le Gallois, confirm the general view now offered so far as they bear upon it. These have consisted in an examination into the different effects produced on the heart and lungs by suddenly destroying or cutting off the communication of the whole brain; by slowly destroying it; by destroying it in the posterior part alone; and in the anterior part alone; and by destroying, in like manner, the spinal marrow at the neck, or where it unites with the brain; in its middle or dorsal, and in its lumbar region. The animals operated upon were chiefly rabbits.

This view supported by various sets of experiments.

According to the experiments of M. Le Gallois †, after the destruction of the brain, the action of the heart still continues for a considerable period of time unimpaired; while on the destruction of the spinal marrow at its upper or cervical extremity, this action becomes instantly so debilitated as to be no longer capable of supporting the circulation. Whence he infers that it is from the chord of the spinal marrow, and not from the gland of the brain, that the heart derives the principle of its life and motions.

Experiments of Le Gallois.

The experiments of Dr. Philip ‡ are at variance with the above of M. Le Gallois, and his conclusions are, therefore, somewhat different. They seem to show that both the brain and spinal marrow may be destroyed, and yet the heart continue to act forcibly and steadily, pro-

Experiments of Philip.

* Phil. Trans. 1815. p. 90.

† Expériences sur la Principe de la Vie, &c.

‡ Phil. Trans. 1815, p. 15 and 444.

Class IV. II. Principle of sensation and motion.

vided the lungs be excited by the artificial breath of a pair of bellows.

The brain and spinal marrow were destroyed by a hot wire, the animal being first stupefied by a blow on the occiput. Frogs and a few other animals were here employed as well as rabbits. It is not exactly stated how long, under this process, the heart continued to beat. Yet, contrary to what Dr. Philip seems to have expected, but in perfect concurrence with the hints I have just thrown out, he found that certain stimuli applied to the brain, whether in the anterior or posterior part of the head, increased very sensibly the action of the heart, the animal being still prepared as just stated. The same effect ensued when the same stimuli were applied to the cervical and even the dorsal part of the spinal marrow: but not when applied to the lumbar.

Conclusion of Philip from his own experiments, in accordance with the hints now proposed.

Dr. Philip hence concludes that there are three kinds of vital power: muscular, possessed by the lowest kinds of animals that are destitute of both the others; nervous, or that which is here denominated the medium of touch or simple feeling, chiefly derived from, or dependent upon the spinal marrow, and possessed by animals somewhat more advanced in the scale of life; and sensorial, constituting what we have just regarded as the medium of the local senses, and appertaining to the higher classes. He adds, that each of these may exist alone, and consequently independently of the rest; but admits that where the nervous principle co-exists with the muscular, it exerts an influence over it, so that the latter may even be overborne or destroyed by such influence; and that when the sensorial co-exists with both, it exercises over both an equal degree of control.

III. Intellectual principle.

III. But the nervous organ in its most elaborate and perfect state, as in man, is not only the seat of sensation and motion, but of intelligence: it is the instrument of communication between the mind and the body, as well as between the body and the objects by which the body is surrounded. And as a failure or irregular performance of its functions in various ways lays a foundation for an

extensive division of corporeal diseases, so a like failure or irregularity of performance in other ways lays a foundation for as numerous a train of mental maladies.

Class IV. III. Intellectual principle.

Of the nature of the mind or soul itself, we know little beyond what REVELATION has informed us; we have no chemical test that can reach its essence; no glasses that can trace its mode of union with the brain; no analogies that can illustrate the rapidity of its movements. And hence the darkness that, in this respect, hung over the speculations of the Indian gymnosophists and the philosophers of Greece, continues without abatement, and has equally resisted the labours of modern metaphysicians and physiologists. That the mind is an intelligent principle we know from nature; and that it is a principle endowed with immortality, and capable of existing after death in a state separate from the body, to which, however, it is hereafter to be re-united at a period when that which is now mortal shall put on immortality, and death itself be swallowed up of victory—we learn from the God of nature. And with such information we may well rest satisfied: and, with suitable modesty, direct our investigations to those lower branches of this mysterious subject that lie within the grasp of our reason.

The nature of the mind but little known, except from revelation.

Nature teaches that it is intelligent: its other powers, and ultimate re-union with the body taught only by a preternatural communication.

I cannot, however, drop the subject altogether, without observing that the discussion concerning the particular entity of the mind, seems to have been conducted with an undue degree of heat and confidence on all sides, considering our present ignorance of whatever substance has been appealed to as constituting its specific frame.

Hence the controversies concerning its entity have often exhibited an unbecoming warmth and confidence.

Is the essence of the mind, soul, or spirit, material or immaterial? The question, at first sight, appears to be of the utmost importance and gravity; and to involve nothing less than a belief or disbelief, not indeed, in its divine origin, but in its divine similitude and immortality. Yet I may venture to affirm that there is no question which has been productive of so little satisfaction, or has laid a foundation for wider and wilder errors within the whole range of metaphysics. And for this plain and obvious reason, that we have no distinct ideas

Whether its essence be material or immaterial?

The question unsatisfactory and pregnant with errors, since neither term affords a distinct idea.

CLASS IV. III. Intellectual principle.

of the terms, and no settled premises to build upon. Corruptibility and incorruptibility, intelligent and unintelligent, organized and inorganic, are terms that convey distinct meanings to the mind, and impart modes of being that are within the scope of our comprehension. But materiality and immateriality are equally beyond our reach. Of the essence of matter we know nothing, and altogether as little of many of its more active qualities: insomuch that, amidst all the discoveries of the day, it still remains a controvertible position, whether light, heat, magnetism and electricity are material substances, material properties, or things superadded to matter and of a higher nature.

Essence of matter not known: nor many of its most active qualities. Its relation to light, heat, magnetism and electricity not known.

If they be matter, gravity and ponderability are not essential properties of matter, though commonly so regarded. And if they be things superadded to matter, they are necessarily immaterial, and we cannot open our eyes without beholding innumerable proofs of material and immaterial bodies co-existing and acting in harmonious union through the entire frame of nature. But if we know nothing of the essence, and but little of the qualities of matter, of that common substrate which is diffused around us in every direction, and constitutes the whole of the visible world, what can we know of what is immaterial? of the full meaning of a term that, in its strictest sense, comprehends all the rest of the immense fabric of actual and possible being; and includes, in its vast circumference, every essence and mode of essence of every other being, as well below as above the order of matter, and even that of the Deity himself?

Immaterial essences totally unknown.

Whether extension be a distinctive property of matter.

Shall we take the quality of extension as the line of separation between what is material and what is immaterial? This, indeed, is the general and favourite distinction brought forward in the present day; but it is a distinction founded on mere conjecture, and which will by no means stand the test of inquiry. Is space extended? every one admits it to be so. But is space material? is it body of any kind? Des Cartes, indeed, contended that it is body, and a material body; for he denied a va-

Whether possessed by space.

cuum, and asserted space to be a part of matter itself: but it is probable that there is not a single espouser of this opinion in the present day. If then extension belong equally to matter and to space, it cannot be contemplated as the peculiar and exclusive property of the former; and if we allow it to immaterial space, there is no reason why we should not allow it to immaterial spirit. If extension appertain not to the mind or thinking principle, the latter can have NO PLACE of existence; it can exist NO WHERE: for WHERE or PLACE is an idea that cannot be separated from the idea of extension. And hence, the metaphysical immaterialists of modern time freely admit that the mind has NO PLACE of existence; that it does exist NO WHERE; while, at the same time, they are compelled to allow that the immaterial Creator, or universal Spirit, exists EVERY WHERE, substantially as well as virtually.

CLASS IV. III. Intellectual principle. In the present day acknowledged to be incorporeal.

Nor let it be supposed that the difficulty is removed by adding to matter the quality of solidity in conjunction with that of extension, and hence distinguishing it as possessed of SOLID EXTENT; for the quality of solidity is less characteristic of it than any we have thus far taken notice of; and is perpetually fleeing from us as we pursue it. That matter is infinitely divisible we dare not say, because we should hereby reduce it to mathematical points, and because, also, there would, in such case, be no certain or permanent basis to build upon, and to ensure a punctuality of material cause and effect: and hence, Sir Isaac Newton was obliged to suppose that it is possessed of ultimate atoms which are solid and unchangeable. But of these the senses can trace nothing, and our admission is nothing more than conjectural.

Whether solidity be a property of matter.

Apparently not:

but obliged to be taken for granted.

Let not the author, however, be misunderstood upon this abstruse and difficult subject. That the mind has a DISTINCT NATURE and is a DISTINCT REALITY from the body; that it is gifted with immortality, endowed with reasoning faculties, and capacified for a state of separate existence after the death of the corporeal frame to which it is attached, are, in his opinion, propositions most clearly deducible from revelation, and, in one or two points, ad-

Real character of the mind as deducible from natural and revealed evidence;

Class IV. III. Intellectual principle.

but its actual essence unknown,

umbrated by a few shadowy glimpses of nature. And that it may be a substance strictly IMMATERIAL and ESSENTIALLY DIFFERENT from matter is both possible and probable; and will hereafter, perhaps, when faith is turned into vision, and conjecture into fact, be found to be the true and genuine doctrine upon the subject. But till this glorious era arrive; or till, antecedently to it, it be proved, which it does not hitherto seem to have been, that matter, itself of divine origin, gifted even at present, under certain modifications, with instinct and sensation, and destined to become immortal hereafter, is physically incapable, under some still more refined, exalted, and spiritualized modification, of exhibiting the attributes of the soul, of being, under such a constitution, endowed with immortality from the first, and capacified for existing separately from the external and grosser frame of the body; and that it is beyond the power of its own Creator to render it intelligent, or to give it even brutal perception, the argument must be loose and inconclusive: it may plunge us, as it has plunged thousands before, into errors, but can never conduct us to demonstration. It may lead us, on the one hand, to the proud Brahminical and Platonic belief that the essence of the soul is the very essence of the Deity, and consequently a part of the Deity himself: or, on the other, to the gloomy regions of modern materialism, and to the cheerless doctrine that it dies and dissolves in one common grave with the body.

and the question concerning it on the one hand has engendered pride: on the other is full of gloom.

In almost every view of the subject, man is a compound being:

It is no fair objection, however, against the immaterialist, that by contemplating the mind as a distinct essence from that of the body, man is hereby rendered a compound being, possessing at one and the same time two distinct lives mysteriously united in an individual frame, and running in parallel lines till the hour of death. For whilst the known and obvious laws and faculties of the mind and body are so widely different, as they are acknowledged to be on all hands, some such composite union has been and must be allowed under every hypothesis whatever. And least of all have the sceptical physiologists of the present day any right to triumph upon such

and peculiarly so regarded by

an objection; who, drawing no light from nature, and rejecting that of sacred writ, contemplate the mind as formed of the same gross modification of matter as the body, and doomed to fall with it into one common and eternal dissolution. For even these acute materialists, with all the aid of physiological, anatomical, and chemical research, instead of simplifying the human fabric, have made it more clumsily complex, and represented it sometimes, indeed, as a duad, but of late more generally as a triad, of unities, a combination of a corruptible life within a corruptible life two or three deep, each possessing its own separate faculties or manifestations, but covered with a common outside.

Class IV. III. Intellectual principle. most sceptical physiologists of modern times.

This remark more especially applies to the philosophers of the French school: and particularly to the system of Dumas*, as modified by Bichat; under which more finished form man is declared to consist of a pair of lives, each distinct and co-existent under the names of an organic and an animal life; with two distinct assortments of sensibilities, an unconscious and a conscious. Each of these lives is limited to a separate set of organs, runs its race in parallel steps with the other; commencing coetaneously and perishing at the same moment†. This work appeared at the close of the past century; was read and admired by most physiologists; credited by many; and became the popular production of the day. Within ten or twelve years, however, it ran its course, and was as generally either rejected or forgotten even in France: and M. Richerand first, and M. Magendie since, have thought themselves called upon to modify Bichat, in order to render him more palatable, as Bichat had already modified Dumas. Under the last series of remodelling, which is that of M. Magendie, we have certainly an improvement, though the machinery is quite as complex. Instead of two distinct lives M. Magendie presents us with two distinct sets or systems of action or relation, each of which

Hypothesis of Dumas: of Bichat.

Hypothesis of Richerand and Magendie.

* Principes de Physiologie. 4 Tom. 8vo. Par. 1800-3.

† Recherches sur la Vie et la Mort, &c.

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has its separate and peculiar functions, a system of nutritive action or relation, and a system of vital. To which is added, by way of appendix, another system, comprising the functions of generation *. Here, however, the brain is not only the seat but the organized substance of the mental powers: so that, we are expressly told, a man must be as he is made in his brain, and that education, and even logic itself, is of no use to him. "There are," says M. Magendie, "justly celebrated persons who have thought differently; but they have hereby fallen into grave errors." A Deity however is allowed to exist, because, adds the writer, it is comfortable to think that he exists, and on this account the physiologist cannot doubt of his being. "L'intelligence de l'homme," says he, "se compose de phénomênes tellement différens de tout ce que présente d'ailleurs la nature, qu'on les rapporte à un être particuliere qu'on regarde comme une emanation de la Divinité. Il est trop *consolant de croire à cet être*, pour que le physiologiste métte en doute son existence; mais la séverité de language ou de logique que comporte maintenant la physiologie exige que l'on traite de l'intelligence humaine comme si elle était la résultat de l'action d'un organe. En *s'écartant* de cette marche, des hommes justement célèbres sont tombés dans des *graves erreurs;* en la suivant, on a, d'ailleurs, le grand avantage de conserver la même méthode d'étude, et de rendre très-faciles des choses qui sont envisagées généralement comme presqu' au-dessus de l'esprit humain."—"Il existe une science dont le but est d'apprendre à raisonner justement c'est *la logique*, mais le jugement erroné ou l'esprit faux (for judgement, genius, and imagination, and therefore false reasoning, all depend on organization) tiennent à l'organization. Il est impossible de se changer à cet egard; nous restons tels que *la nature* nous à faits †.

Hypothesis of Spurzheim.

Dr. Spurzheim has generally been considered, from the concurrent tenour of his doctrines, as belonging to the class

* Précis Elementaire de Physiologie. 2 Tom. 8vo. Paris, 1816, 1817.

† Précis Elementaire, &c. ut supra, passim.

of materialists; but this is to mistake his own positive assertion upon the subject, or to conclude in opposition to it. He speaks, indeed, upon this topic with a singular hesitation and reserve, more so, perhaps, than upon any other point whatever; but as far as he chooses to express himself on so abstruse a subject, he regards the soul as a distinct being from the body, and at least intimates that it *may be* nearer akin to the Deity. Man is with him also possessed of two lives, an AUTOMATIC and an ANIMAL: the first produced by organisation alone, and destitute of consciousness; the second possessed of consciousness dependent on the soul, and merely manifesting itself by organization. "We do not," says he, "attempt to explain how the body and soul are joined together and exercise a mutual influence. We do not examine what the soul can do without the body. Souls, so far as we know, may be united to bodies at the moment of conception or afterwards; they may be different in all individuals, or of the same kind in every one; they may be emanations from God, or something essentially different"*. The mind of this celebrated craniologist seems to be wonderfully sceptical and bewildered upon the subject, and studiously avoids the important question of the capacity of the soul for an independent, and future existence: but with the above declarations he cannot well be arranged in the class of materialists.

CLASS IV. III. Intellectual principle.

The hypothesis which has lately been started by Mr. Lawrence† is altogether of a different kind, and though undoubtedly much simpler than any of the preceding, does not seem to be built on a more stable foundation. According to his view of the subject, organized differs from inorganized matter merely by the addition of certain PROPERTIES which are called vital, as sensibility and irritability. Masses of matter endowed with these new PROPERTIES become organs and systems of organs, constitute an animal frame, and execute distinct sets of

Hypothesis of Lawrence simpler, but its basis not more stable.

* Physiognomical System, &c. p. 253. 8vo. Lond. 1815.

† Introduction to Comparative Anatomy and Physiology, &c. 8vo. 1816.

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PURPOSES or FUNCTIONS, for functions and purposes carried into execution are here synonymous. "Life is the assemblage of ALL the functions (or purposes) and the general result of their exercise"*.

Regards life as a mere property of matter, occasional and accidental: without any real essence: a mere assemblage of purposes, or series of phænomena.

Life, therefore, upon this hypothesis, instead of being a two-fold or three-fold reality, running in a combined stream, or in parallel lines, has no reality whatever. It has no ESSE or independent existence. It is a mere assemblage of PURPOSES, and accidental or temporary PROPERTIES: a series of phænomena†, as Mr. Lawrence has himself correctly expressed it;—a name without a thing. "We know not," says he, "the nature of the link that unites these phænomena, though we are sensible that a connexion must exist; and this conviction is sufficient to induce us to give it a NAME, which the VULGAR regard as the sign of a particular principle; though in fact that name can only indicate the ASSEMBLAGE OF THE PHÆNOMENA which have occasioned its formation"‡.

Hence the human frame a barrel-organ and life the music it plays, ceasing as the music ceases when the machine will no longer work.

The human frame is, hence, a barrel-organ, possessing a systematic arrangement of parts, played upon by peculiar powers, and executing particular pieces or purposes; and life is the music produced by the general assemblage or result of the harmonious action. So long as either the vital or the mechanical instrument is duly wound up by a regular supply of food or of the wince, so long the music will continue: but both are worn out by their own action; and when the machine will no longer work, the life has the same close as the music; and in the language of Cornelius Gallus, as quoted and appropriated by Leo X.,

—redit in nihilum, quod fuit ante nihil.

This hypothesis not new: but started by Aristoxenus a pupil of Aristotle, who thus

There is, however, nothing new either in this hypothesis or in the present explanation of it. It was first started in the days of Aristotle by Aristoxenus, a pupil of his, who was admirably skilled in music, and by profession a

* Introduction to Comparative Anatomy and Physiology, &c. p. 120.
† Id. p. 122.
‡ Id. p. 122.

physician. It was propounded to the world under the name of the system of HARMONY, either from the author's fondness for music, or from his comparing the human frame to a musical instrument, and his regarding life as the result of all its parts acting in accordance, and producing a general and harmonious effect.

CLASS IV. III. Intellectual principle illustrated it, and named it the system of harmony.

How far Mr. Lawrence's revised edition of this hypothesis may prove satisfactory to other classes of materialists I cannot tell: but if he should succeed, he will be more fortunate than Aristoxenus who pleased neither the other materialists nor the immaterialists of his day. From the latter, indeed, he could expect no countenance: but even the Epicureans, though they held that the mind was corruptible as formed of matter, which they had no reason to believe was then or ever would be otherwise than corruptible under any modification whatever, held, at the same time, that it had a substantive existence, distinct from that of the grosser frame of the body, and possessed of other and far higher properties: being formed of the finest, lightest, smoothest, and most moveable material elements, and hence exquisitely etherialized and volatile:

Opposed by all the other sects of materialists in his day:

especially by the Epicureans;

> —est animi natura reperta
> Mobilis egregie, perquam constare necesse est
> Corporibus parvis, et lævibus, atque rotundis *.

The atomic philosophers, therefore, joined with the Platonists and Stoics in opposing the system of harmony, and that chiefly upon the two following grounds, which will apply with as much force to its present as to its primary form. First, admitting that an assemblage and exercise of ALL the functions of the machine are necessary to maintain the phænomena of life, we are left as much in the dark as ever concerning the nature of the principle by which this harmonious instrument becomes gradually developed and is kept in perpetual play. And next, that the life or well-being of the animal frame does not depend upon an assemblage and exercise of ALL its functions or purposes, since the mind may be diseased

who united with the Platonists and Stoics.

Their grounds of opposition applicable to the same doctrine in its present modification.

* Lucret. De Rer. Nat. III. 204.

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while the body remains unaffected; or the body may lose some of its own organs, while the mind, or even the general health of the body itself may continue perfect *.

General result and general duty.

In the darkness, therefore, which continues to hang over the mysterious subject before us, I feel incompetent to enter into the question concerning the actual essence of the mind, and am perfectly content to take its general nature, powers and destiny, from the only volume which is capable of giving us any decided information upon the subject; to follow it up as far as that volume may guide us, and to stop where it withdraws its assistance.

Another subject closely connected herewith.

Closely connected with the present question is another of nearly as much perplexity, and the consideration of which has not been attended with much more success, but which must not be passed by on the present occasion without being glanced at.

By what means the mind maintains an intercourse with the surrounding world. No direct communication: rarely ever between the external senses and the external objects.

Whatever be the nature or substance of the mind, the brain is the organ in which it holds its seat; and whence it maintains an intercourse with the surrounding world. Now, it must be obvious to every one who has attended to the operation of his senses, that there never is, nor can be any direct communication between the mind, thus stationed in the brain, and the external objects the mind perceives; which are usually, indeed, at some distance even from the sense that gives notice of them. Thus, in looking at a tree it is the eye alone that beholds the tree, while the mind only perceives a notice of its presence by some means or other, from the visual organ. So, in touching this table it is my hand alone that comes in contact with it, and communicates to my mind a knowledge of its hardness and other qualities. What then is the medium by which such communication is maintained? which enables the mind to have a perception of the form, size, colour, smell, and even distance of objects, correspondent with that of the senses which are seated on the surface of the body? and which

What then is the medium of communication?

* Lucret. De Rer. Nat. III. 105—266. Lactant. in Vit. Epicur. Polignac. Anti-Lucret. Lib. v. 923.

at the same time that it conveys this information, produces such an additional effect, that the mind is able, at its own option, to call up an exact notion or idea of those qualities at a distant period, or when the objects themselves are no longer present? Is there, or is there not, any resemblance between the external or sensible object, and the internal or mental idea or notion? If there be a resemblance, in what does that resemblance consist? and how is it produced and supported? Does the external object throw off representative likenesses of itself in films or under any other modification, so fine as to be able, like the electric or magnetic aura, to pass without injury from the object to the sentient organ, and from the sentient organ to the sensory, or mental presence-chamber? or has the mind itself a faculty of producing, like a mirror, accurate counter-signs, intellectual pictures or images correspondent with the sensible images communicated from the external object to the sentient organ? If, on the contrary, there be no resemblance, are the mental perceptions mere notions, or intellectual symbols excited in the mind by the action of the external sense; which, while they bear no similitude to the qualities of the object discerned, answer the purpose of those qualities, as letters answer the purpose of sounds? or are we sure that there is any external world whatever; any thing beyond the intellectual principle that perceives and the sensations and notions that are perceived; or even any thing beyond those sensations and notions, those impressions and ideas themselves?

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How attempted to be explained by former hypotheses.

Explanation of Epicurus.

Of Aristotle.

Of Plato and later psychologists.

Of Berkeley and Hume.

Several of these questions may perhaps appear in no small degree whimsical and brain-sick, and more worthy of St. Luke's than of a work of physiological study. But all of them, and at least as many more, of a temperament as wild as the wildest, have been asked and insisted upon, and supported again and again in different ages and countries, from the zenith of Grecian science down to our own day, by philosophers of the clearest intellects in other respects, and who had no idea of labouring

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under any such mental infirmity, nor ever dreamed of the necessity of being blistered and taking physic.

The obscurity of the subject proved by the nature of the questions proposed.

The nature of the questions themselves, therefore, when put by the characters referred to, sufficiently manifest the obscurity of the subject to which they relate: and to enter into the discussions to which they have given rise, would lead us to an irrecoverable distance from the path before us. Those who are desirous of following them up and of witnessing an exposure of their absurdity, cannot do better than apply themselves to the metaphysical writings of Dr. Reid, Dr. Beattie, Dr. Campbell and Professor Stewart; who if, on the overthrow of so many Babel-buildings, they have not been able to raise an edifice much more substantial in their stead, have only failed from the insuperable difficulty of the attempt.

These hypotheses thrown down by later writers who have little succeeded in establishing any other.

The difficulty felt by Locke, who studiously avoided the abstruser part of the subject, and elucidated what was capable of elucidation in his Essay on Human Understanding.

No man was more sensible of this difficulty than Mr. Locke, nor has taken more pains both to avoid what is unintelligible and unprofitable, and to elucidate what may be turned to a good account and brought home to an ordinary comprehension. It was his imperishable Essay on Human Understanding that gave the first check to the wild and visionary conceits in which the most celebrated luminaries of the age were at that time engaged; recalled mankind from the chasing of shadows to the study of realities, from a pursuit of useless and inexplicable subtleties to that of important and cognoscible subjects; or rather to the only mode in which the great inquiry before him could be followed up with any reasonable hope of success or advantage.

Character of this work.

To this elaborate and wonderful work which has conferred an ever-during fame, not only on its matchless author, but on the nation to which he belonged, and even the age in which he lived, the physiologist cannot pay too close an attention. It is, indeed, of the highest importance to every science, as teaching us the elements of all science, and the only mode by which science can be rendered really useful, and carried forward to ultimate perfection; but it is of immediate importance to every branch

of physical knowledge, and particularly to that which is employed in unfolding the structure of the mind, and its connexion with the visible fabric that incloses it. It may, perhaps, be somewhat too long; it may occasionally embrace subjects which are not necessarily connected with it; its terms may not always be precise, nor its opinions in every instance correct: but it discovers intrinsic and most convincing evidence that the man who wrote it must have had a head peculiarly clear, and a heart peculiarly sound: it is strictly original in its matter, highly important in its subject, luminous and forcible in its argument, perspicuous in its style, and comprehensive in its scope. It steers equally clear of all former systems: we have nothing of the mystical archetypes of Plato, the incorporeal phantasms of Aristotle, or the material species of Epicurus; we are equally without the intelligible world of the Greek schools, and the innate ideas of Des Cartes. Passing by all which, from actual experience and observation, it delineates the features, and describes the operations of the human mind with a degree of precision and minuteness which has never been exhibited either before or since; and stands, and probably ever will stand, like a rock before the puny waves of opposition by which it has since been assailed from various quarters. The author may speak of it with warmth, but he speaks from a digested knowledge of its merits: for he has studied it thoroughly and repeatedly, and there is, perhaps, no book to which he is so much indebted for whatever small degree of discrimination, or habit of reasoning he may possibly be allowed to lay claim to.

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Avoids all the unintelligible jargon of former times; and clearly developes the growth and features of the mind from its earliest appearance.

Upon one point he is perfectly clear, and that is that the chief objections at any time urged against this celebrated production have proceeded from an utter mistake of its meaning, of which he could give numerous instances, if such a digression were allowable, from the writings of many who have the credit of having studied it profoundly. The remark applies to several of the most popular psychologists of both North and South Britain, but especially to those of the continent, and more parti-

Has been misunderstood in some essential points,

especially in France.

Class IV. III. Intellectual principle. Gives to the medical student the physiology of the mind: as Haller and Hunter give that of the body.

cularly still to M. Condorcet, from whom the French in general have received an erroneous idea of several of its leading doctrines. It is to this book the medical student ought to turn himself for a knowledge of the laws that regulate the developement and growth of the mind, as he should do to the labours of Haller or Hunter for a knowledge of those that regulate the developement and growth of the body, and I shall hence draw largely upon it through the remainder of this introduction.

What the mind is when first formed.

The whole then of the metaphysical rubbish of the ancient schools being cleared away by the purging and purifying energy of the Essay on Human Understanding, mankind have since been enabled to contemplate the body and mind as equally, at birth, a *tabula rasa*, or unwritten sheet of paper; as consisting equally of a blank or vacuity of impressions; but as equally capable of acquiring impressions by the operation of external objects, and equally and most skilfully endowed with distinct powers or faculties for this purpose; those of the body being the external senses of sight, hearing, smell, taste, and touch; and those of the mind the internal senses of perception, reason, judgement, imagination, and memory.

Powers or faculties of the mind compared with those of the body.

Possibly a few slight impressions produced before birth; and certainly instinctive tendencies.

It is possible that a few slight impressions may be produced a short time antecedently to birth; and it is certain that various instinctive tendencies which, however, have no connection with the mind, are more perfect, because more needful, at the period of birth than ever afterwards; and we have also frequent proofs of an hereditary or accidental predisposition towards particular subjects. But the fundamental doctrine before us is by no means affected by such collateral circumstances.

First impression of external objects.

External objects first impress or operate upon the outward senses; and these senses by means hitherto unexplained, and, perhaps, altogether inexplicable, immediately impress or operate upon the mind, or excite in it perceptions or ideas of the presence and qualities of such objects; the word idea being here employed, not in any of the significations of the schools, but in its broad,

Idea, what, as employed by Locke.

popular meaning, as importing "whatever a man observes, and is conscious to himself he has in his mind"*; whatever was formerly intended by the terms archetype, phantasm, species, thought, notion, or conception, or whatever else it may be which we can be employed about in thinking†. And to these effects Mr. Locke gave the name of *ideas of* SENSATION, in allusion to the source from which they are derived.

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Ideas of sensation.

But the mind, as we have already observed, has various powers or faculties as well as the body; and they are quite as active and lively in their respective functions: in consequence of which the ideas of external objects are not only perceived, but retained, thought of, compared compounded, abstracted, doubted, believed, desired; and hence another fountain, and of a very capacious flow, from which we also derive ideas: viz. a reflex act or perception of the mind's own operations; whence the ideas derived from this fountain are denominated *ideas of* REFLEXION.

Action of the mind on itself.

Ideas of reflexion.

The ideas, then, derived from these two sources, and which have sometimes been called OBJECTIVE and SUBJECTIVE, constitute all our experience, and, consequently, all our knowledge. Whatever stock of information a man may be possessed of, however richly he may be stored with taste, learning, or science, if he turn his attention inwards, and diligently examine his own thoughts, he will find that he has not a single idea in his mind, but what has been derived from the one or the other of these two channels. But let not this important observation be forgotten by any one; that the ideas the mind possesses will be fewer or more numerous, simpler or more diversified, clear or confused, according to the number of the objects presented to it, and the extent of its reflexion and examination. Thus a clock or a landscape may be for ever before our eyes, but unless we direct our attention to them, and study their different parts, although we cannot be deceived

Ideas are therefore of two kinds, objective and subjective: and only derived from these two sources.

Number and nature of the ideas we possess, measured by the activity of the mind.

* Locke, on Human Understanding, B. i. ch. i. § 8.

† Locke, B. i. ch. i. § 8.

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in their being a clock or a landscape, we can have but a very inadequate idea of their character and composition.

Ideas of two descriptions from each of the above sources.

The ideas presented to the mind, from which soever of these two sources derived, are of two kinds—SIMPLE and COMPLEX.

Simple ideas, what.

SIMPLE IDEAS consist of such as are limited to a single notion or perception; as those of unity, darkness, light, sound, simple pain or uneasiness. And in the reception of these the mind is passive; for it can neither make them to itself, nor can it, in any instance, have any idea which does not wholly consist of them; or, in other words, it cannot contemplate any one of them otherwise than in its totality.

Complex ideas, what.

COMPLEX IDEAS are formed out of various simple ideas associated together or contemplated derivatively. And to this class belong the ideas of an army, a battle, a triangle, gratitude, veneration, gold, silver, an orange, an apple: in the formation of all which it must be obvious that the mind is active: for it is the activity of the mind alone that produces the complexity out of such ideas as are simple. And that the ideas I have now referred to are complex, must be plain to every one; for every one must be sensible that the mind cannot form to itself the idea of an orange, without uniting into one aggregate the simple ideas of roundness, yellowness, juiciness, and sweetness; and so of the rest.

Formed out of simple ideas by various mental operations.

Complex ideas are formed out of simple ideas by many operations of the mind; the principal of which, however, are some combination of them, some abstraction or some comparison. Let us take a view of each of these.

Complex ideas of combination.

And first of complex ideas of COMBINATION. Unity, as I have already observed, is a simple idea; and it is one of the most common simple ideas that can be presented to the mind; for every object without, and every notion within, tend equally to excite it: and being a simple idea, the mind, as I have also remarked, is passive on its presentation: it can neither form such an idea to itself, nor contemplate it otherwise than in its totality: but it

can combine the ideas of as many units as it pleases, and hence produce the complex idea of a hundred, a thousand or a hundred thousand. So beauty is a complex idea; for the mind, in forming it, combines a variety of separate ideas into one common aggregate. Thus Dryden, in delineating the beautiful Victoria in his Love Triumphant,

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> Her eyes, her lips, her cheeks, her shape, her features,
> Seem to be drawn by Love's own hand; by Love
> Himself in love.

In like manner the mind can produce complex ideas by an opposite process; and that is by ABSTRACTION or separation. Thus chalk, snow, and milk, though agreeing, perhaps, in no other respect, coincide in the same colour; and the mind, contemplating this agreement, may abstract or separate the colour from the other properties of these three objects, and form the idea which is indicated by the term *whiteness*; and having thus acquired a new idea by the process of abstraction, it may afterwards apply it as a character to a variety of other objects; and hence particular ideas become general or universal.

Complex ideas of abstraction.

Other complex ideas are produced by COMPARISON. Thus if the mind take one idea, as that of a foot, as a determinate measure, and place it by the side of another idea, as the idea of a table, the result will be a formation of the complex idea of length, breadth, and thickness. Or, if we vary the primary idea, we may obtain, as a result, the secondary ideas of coarseness and fineness.

Complex ideas of comparison.

And hence, complex ideas must be almost infinitely more numerous than simple ideas which are their elements or materials; as words must be always far more numerous than letters. I have instanced only a few of their principal kinds, and have applied them only to a few of the great variety of subjects to which they are referable, and by which they are elucidated, in the great work on Human Understanding.

Hence complex ideas far more numerous than simple.

It must, however, from this imperfect sketch, appear obvious that many of our ideas have a NATURAL CORRE-

Ideas possess a natural corre-

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SPONDENCE, congruity, and connexion with each other; and as many, perhaps, on the contrary, a NATURAL REPUGNANCY, incongruity, and disconnexion. Thus, if I were to speak of a cold fire I should put together ideas that are naturally disconnected and incongruous; and should consequently make an absurd proposition, or, to adopt common language, talk nonsense. I should be guilty of the same blunder if I were to talk of a square billiard-ball, or a soft, reposing rock; but a warm fire, on the contrary, a white or even a black billiard-ball, and a hard, rugged rock are congruous ideas, and consequently consistent with good sense. Now it is the direct office of that discursive faculty of the mind which we call reason, to trace out these natural coincidences or disjunctions, and to connect or separate them by proper relations: for it is a just perception of the natural connexion and congruity, or of the natural repugnancy and incongruity of our ideas that shows a sound mind and constitutes real knowledge. The wise man is he who has industriously laid in and carefully assorted an extensive stock of ideas; as the stupid or ignorant man is he who, from natural hebetude, or having had but few opportunities, has collected and arranged but a small number. The man who discovers the natural relations of his ideas quickly, is a man of sagacity; and, in popular language, is said, and correctly so, to possess a quick, sharp intellect; the man, on the contrary, who discovers these relations slowly, we call dull or heavy. If he rapidly discover and put together relations that lie remote, and, perhaps touch only in a few points, but those points striking and pleasant, he is a man of wit, genius, or brilliant fancy, of agreeable allusion and metaphor; if he intermix ideas of fancy with ideas of reality, those of reflexion with those of sensation, and mistake the one for the other, however numerous his ideas may be, and whatever their order of succession, he is a madman; he reasons from false principles, and, as we say in popular language, and with perfect correctness, is out of his judgement.

spondence; or a natural congruity. Exemplified.

Office of reason to trace out these congruities and incongruities; a just perception of them a proof of a sound mind, and a source of real knowledge.

Wise man, what.

Ignorant man.

Man of sagacity.

Man of dulness.

Man of wit, genius, and imagination.

Mad-man:

or out of his judgement.

Finally, our ideas are very apt to ASSOCIATE or run

Association of ideas.

together in trains; and upon this peculiar and happy disposition of the mind we lay our chief dependence in sowing the seeds of education. It often happens, however, that some of our ideas have been associated erroneously, and even in a state of early life, before education has commenced; and hence, from the difficulty of separating them, most of the sympathies and antipathies, the whims and prejudices that occasionally haunt us to the latest period of old age.

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Sympathies and antipathies: whims and prejudices.

Such, then, is the manner, in which the mind, at first a sheet of white paper, without characters of any kind, becomes furnished with that vast store of ideas, the materials of wisdom and knowledge, which the busy and boundless fancy of man paints upon it with an almost endless variety. The whole is derived from experience, THE EXPERIENCE OF SENSATION OR OF REFLEXION; from the observations of the mind employed either about external sensible objects, or the internal operations of itself, perceived and reflected upon by its own faculties.

General recapitulation.

These FACULTIES are to the mind what organs are to the body: they are its ministers in the production, combination, and resolution of different trains of ideas, and in supplying it with the results of its own activity. We sometimes, however, are apt to speak of them as distinct and separate existences from the mind, or as possessing a sort of independent entity, and as controlling one another by their individual authorities, and occasionally, indeed, as controlling the mind itself: for we accustom ourselves to describe the will as being overpowered by the judgement; or the judgement as being overpowered by the imagination; or the mind itself as being carried headlong by the violence of its own passions. By all which, however, we only mean or should only mean, that the mind does not, on such occasions, exert its own faculties in a fitting or sober manner, or that from some diseased affection, it is incapable of doing so. For the faculties of the mind are so many powers; and, as powers, are mere attributes of the being or substance to which they belong, and not the being or substance itself. These,

Hence faculties to the mind what organs are to the body.

Often spoken of as distinct existences, but erroneously.

Exemplified.

Faculties merely distinct powers; and all disinct from each other.

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therefore, being all different powers in the mind or in the man, to do several actions, he exerts them as he thinks fit: but the power to do one action is not operated upon by the power to do another action: for the power of thinking operates not on the power of choosing, nor the power of choosing on the power of thinking: any more than the power of dancing operates on the power of singing, or the power of singing on the power of dancing *, as any one who reflects on these things will easily perceive.

The mind has also its feelings as well as the body.

The body has its feelings, and the mind has its feelings also; and it is the feelings of the latter which we call PASSIONS, a mere Latin term for the feelings or sufferings of colloquial language. The feelings of the body are numerous and diversified, as those of simple ache or ease, hunger, thirst, heat, cold, and a multitude of others.

These are called passions.

Those of the mind are still more numerous and more diversified, for they comprise the multifarious train of grief, joy, love, hatred, avarice, ambition, conceit, and perhaps hundreds more: all which, whether of body or mind, Mr. Locke has endeavoured to resolve into different modifications of pleasure or pain, according as they are productive of good or evil.

Numerous and diversified.

Examples.

Hence the mind subject to various diseases as well as the body.

But the analogy we are thus conducting between the mind and the body holds much farther: for as the latter is subject to DISEASES OF VARIOUS KINDS, so also is the former. The body may be enfeebled in all its powers, in only a few of them, or in only a single one. So also may the mind: "The powers of perception and imagination," observes M. Pinel, "are frequently disturbed without any excitement of the passions. The functions of the understanding, on the other hand, are ofter perfectly sound, while the man is driven by his passions to acts of turbulence and outrage." And these infirmities, whether of body or mind, may be constitutional and permanent, periodical or recurrent, or merely incidental and temporary. The body may be of a sanguineous temperament, of a plethoric temperament, of a nervous or irritable tem-

Those diseases may be also constitutional and permanent, periodical and recurrent, accidental and temporary.

Illustrated.

* Locke, p. 129.

perament; and the mind may, in like manner, possess an over-weening confidence and courage; be characteristically dull and inactive; or be ever goaded on by restlessness and eager desire; it may be quick in apprehension and taste, but weak in memory; strong in judgement, but slow in imagination; or feeble in judgement, but rapid in imagination: its feelings or passions may be sluggish, or all alive; or some passion may be peculiarly energetic, while the rest remain at the temperate point.

Class IV. III. Intellectual principle.

When the corporeal deviations from the standard of high health are but slight, they are scarcely entitled to the name of diseases,—but when severe or extreme, they become subjects of serious attention. It is the same with the different states of the mind with which I have just contrasted them. While several, or even all the mental faculties are slightly weak or sluggish, or inaccordant with the action of the rest, they are scarcely subjects of medical treatment—for otherwise half the world would be daily consigned to a strait waistcoat: but when the same changes become striking and strongly marked, they are real DISEASES OF THE INTELLECT; and, in the ensuing order, the genera will be found taken from the peculiar faculties of the mind that chance to be thus affected.

When deviations from perfect soundness of body slight, hardly called diseases; but only when severe or extreme. The same in the faculties of the mind, slight aberrations scarcely noticed, but when strongly marked, real diseases.

The mind and the body bear also, in many cases, a reciprocal influence on each other; which is sometimes general, and sometimes limited to particular faculties or functions. It is hence that fever or cephalitis produces delirium; and vapours or low spirits dyspepsy.

The mind and body reciprocally influence each other.

The mind, therefore, like the body, becomes an interesting field of study to the pathologist, and opens to his view an additional and melancholy train of diseases. It is these which will constitute the subject of the first order of the class we have now entered upon, and which are entitled to a deep and collected attention.

Hence the mind an interesting piece of study to the pathologist.

CLASS IV.

NEUROTICA.

ORDER I.

PHRENICA.

Diseases affecting the Intellect.

ERROR, PERVERSION, OR DEBILITY OF ONE OR MORE OF THE MENTAL FACULTIES.

Class IV. Order I. Phrenica. Affecting the intellect.

Origin of the ordinal term.

Comprises diseases closely associated: and hence united in almost all plans of nosology.

THE word PHRENICA is Greek from the Greek noun φρὴν, "the mind" or "intellect". The diseases comprised in the order, are so closely associated with each other that, however the ordinal names may differ in different systems of nosology, they are, for the most part, grouped in some form or other under a correspondent division. And hence the present order will be found to run nearly parallel with the Deliria of Sauvages, the Mentales of Linnéus, the Paranoiæ of Vogel, the Vesaniæ of Cullen, and still more with those of Crichton, and the Aliénation mentale of Pinel: although the generic divisions are widely different from all of them, and are attempted

to be rendered something clearer and more exact. The order comprehends the six following:

Class IV. Order I. Phrenica. Diseases affecting the intellect.

I.	ECPHRONIA.	INSANITY.
II.	EMPATHEMA.	UNGOVERNABLE PASSION.
III.	ALUSIA.	ILLUSION.
IV.	APHELXIA.	REVERY.
V.	PARONIRIA.	SLEEP-DISTURBANCE.
VI.	MORIA.	FATUITY.

General character.

Each of these will be found to include various distinct species of disorder proceeding from a morbid condition of one or more of the mental faculties or feelings, or an irrespondence of them to others; sometimes originating in a diseased state of the body, and sometimes producing such a state, as has already been explained in the preceding proem.

GENUS I.

ECPHRONIA.

Insanity. Craziness.

DISEASED PERCEPTION, WITH LITTLE DERANGEMENT OF THE JUDGEMENT, OCCASIONALLY SHIFTING INTO DISEASED JUDGEMENT WITH LITTLE DERANGEMENT OF THE PERCEPTION; DISTURBING THE MIND GENERALLY; DIMINISHED SENSIBILITY; IRREGULAR REMISSIONS.

GEN. I. Origin of the generic term.

THE generic term ECPHRONIA, in the Greek writers ἐκφρώνη or ἐκφροσύνη, is derived from ἔκφρων "extra mentem" —literally "out of one's mind," as ἔμφρων, is "mentis compos" or "in one's mind." It is here used, as among the Greeks, generically alone, in the ordinary sense of insanity; and is designed to include the two following species:

1. ECPHRONIA MELANCHOLIA. MELANCHOLY.
2. ——— MANIA. MADNESS.

Species differently arranged by different writers.

Each of these species has been regarded by many nosologists as forming a *genus* of itself, for which there seems to be no just reason. Dr. Cullen has thus arranged them in his synopsis, but has given them a different arrangement, and a very subordinate place in his Practice of Physic, so that in the two works, he is, in this respect, altogether at variance with himself. In both, his order is entitled vesaniæ, which, in the first, includes fatuity, mania, melancholy and sleep-disturbance (oneirodynia), as distinct genera: but, in the last, takes for its genera delirium, fatuity, and oneirodynia. He con-

Arrangement of Cullen inconsistent with himself.

templates delirium, moreover, as of two kinds, one combined with fever, and one without; the latter, he tells us is what we name insanity; and under this latter kind alone, the apyrectic delirium or insanity, running synonymously with the present genus ecphronia, he proceeds to treat of melancholy and mania as species or subdivisions of it: throwing back the other kind of delirium to the class of fevers, as unconnected with the subject before him. So that, properly speaking, Dr. Cullen's order of vesaniæ should run parallel with the present order phrenica; the genera of which should be delirium and fatuitas; while mania and melancholy should be the species of delirium or the first genus.

Gen. I. Ecphronia. Insanity. Craziness.

Crichton, Parr, Young, Pinel, and most of the German writers, contemplate these diseases under the same sort of specific subdivision. Parr, indeed, in his article MANIA, asserts that both constitute nothing more than VARIETIES of one common species: yet, with an inconsistency which, amongst much that is excellent, is too frequent to be met with in his Dictionary, he changes his opinion in the article NOSOLOGY, makes vesania the genus, and arranges melancholia, mania, and even oneirodynia, as separate species under it.

Arrangement of various other writers. That of Parr self-incongruous.

The distinguishing characters, as the two species are contemplated by the generality of nosologists, are clear. In melancholy the alienation is restrained to a few objects or trains of ideas alone; in madness it is general. And it hence follows that gloom, gaiety, and mischievousness may equally exist under both species; according as these propensities are limited to a single purpose, or are unconfined and extend to every thing. Occasionally, however, among ancient writers we find melancholy insanity limited to insanity accompanied with gloom or despondency, without any attention to the universality or partiality of the disease: for an undue secretion of melancholia, which is only a Greek term for black bile or choler, was supposed to be a common cause of mental dejection, and, where it became habitual, to produce a low or gloomy temperament; to which the term melancholic has con-

Melancholy and mania pathognomically distinguished from each other by the general consent of modern pathologists. Melancholy differently explained by some ancient writers; whose explanation has entered into popular language:

GEN. I. Ecphronia. Insanity. Craziness.

tinued to be applied to the present day. And hence the vulgar sense of the term, which is in unison with this view, is at variance with the technical and pathological. Yet the pathologists themselves have not been uniformly true to their own import: for even Dr. Cullen, who has followed the technical signification in his Synopsis, by defining melancholy as "insania *partialis* sine dyspepsia," sometimes adopts the colloquial meaning in his Practice of Physic, and hereby betrays a confusion which rarely belongs to him; while Dr. (now Sir Alexander Crichton) has given himself over completely to the popular, or, as he would perhaps call it, the antient interpretation of the terms; distinguishing mania, not by the generalization of the delirium, but by its raving fury or elevated gaiety; and melancholy, not by a limitation of the delirium to single objects or trains of ideas, but by its concomitant dejection and despondency.

and been followed technically by Crichton.

Explanation of Pinel in one point incorrect;

There seems to be an equal incorrectness, though of a different kind, in M. Pinel, whose book is, nevertheless, of great merit. Delirium or wandering is made a pathonomic symptom in his definition of the genus; in other words, a want of correspondence between the judgement and the perception; and consequently this symptom should be found in every species which he has arranged under it. M. Pinel, however, has given us one species which has no such symptoms, and which is purposely intended to include cases of what he calls mania without any such discrepancy; on which account he has denominated it *manie sans delire*. All such cases, however, are reducible to modifications of rage or ungovernable passion, and ought by no means to be confounded with mania; the judgement being, in these instances, not at variance with the perception, but overpowered by the predominant fury or passion that has been excited. They all belong properly to our next genus; under which they will be considered.

that of confounding delirium with ungovernable passion.

Difficulty of distinguishing insanity from habitual oddity of temper.

Much difficulty has also been felt in defining ecphronia or insanity, so as to draw the line between real disease and habitual waywardness or oddity; and hence while some definitions are so narrow as to set at liberty half the

patients at Bethlem or the Bicêtre; others are so loose and capacious as to give a strait waistcoat to half the world.

Gen. I. Ecphronia. Insanity. Craziness.

M. Dufour, undertook with great learning and ingenuity to prove that, as all our knowledge of an external world is derived from the action of the external senses, while mental sanity depends upon the soundness of these senses, mental insanity is alone to be referred to a diseased condition of one or more of them. And in proof of this he gives the case of a person who lost his senses because he could not be persuaded that the objects he saw in consequence of an incipient cataract, arose entirely from that complaint. "When he found that he could not remove the dark web which appeared to him to be constantly floating before his eyes, he fell into such frequent fits of violent passion that he became quite insane. But as soon as the disease was completed he became more tractable, and submitted to the operation like a reasonable man."

Faculties essentially diseased.

Dufour's hypothesis, or diseased condition of the external senses.

But this only shows us that

Ira furor brevis est,

or else that the insanity was caused, not by the cataract, but by the frequent fits of violent passion. Thousands of persons have had cataracts in every form, and other external senses than the eye diseased in every form, and have been born defective in several of these senses without the least mark of insanity; while other persons, apparently in the most perfect possession of all the five senses, have been stark mad. And hence the doctrine of M. Dufour, boasts of few advocates in the present day.

In insanity or delirium without fever, it is far more obvious that there is a morbid condition of the judgement, or of the perception, or of both. Mr. Locke, and after him M. Condillac, refers it to the former alone, and characterizes madness, in the general sense of the term, by *false judgement*; by a disposition to associate ideas incorrectly, and to mistake them for truths; and hence, says Mr. Locke, "madmen err as men do that argue right

Hypothesis of Locke and Condillac, or false judgement.

GEN. I. Ephronia. Insanity. Craziness.

from wrong principles"*. Dr. Battie on the contrary, refers madness to the latter faculty alone, and characterises it by *false perception;* but the perceptions in madness seem, for any thing we know to the contrary, to be frequently as correct as in health, the judgement or reasoning being alone diseased or defective.

Battie's hypothesis or false perception.

Both hypotheses imperfect, and in what respect.

It is difficult to say which of these two explanations of madness is most imperfect. It is sufficient to observe that neither of them, taken alone, describes a condition of the faculties strictly morbid, and consequently neither of them defines madness. For we are daily meeting with thousands of mankind who are under the influence of false judgements, who unite incongruous or discrepant ideas, and draw from false associations right conclusions, yet whom we never think of regarding as out of their senses. While on the contrary if false perceptions be sufficient to constitute madness, every man is insane who mistakes at a distance a square for a round tower, the bending azure sky that terminates an extensive landscape for the sea, or the distant rumbling of a heavy waggon over the streets for a peal of thunder: and we should none of us be safe from such a charge for a single day of our lives.

Cullen's hypothesis apparently borrowed from Locke's.

Dr. Cullen seems to have embraced Mr. Locke's view of the subject: for his definition of insanity (vesaniæ) in the latter editions of his Synopsis is "injured functions of the mind in judging *(mentis judicantis)* without pyrexy or coma." Dr. Crichton, on the contrary seems rather to adhere to Dr. Battie's view, though he enlarges and improves upon it; and hence his definition is "General derangement of the mental faculties, in which *diseased* perceptions are mistaken for realities; with incoherent language and unruly conduct."

Crichton's hypothesis: an improvement upon Battie's;

Diseased is certainly a better term than *false*, which is that of Dr. Battie; but "unruly conduct" does not essentially belong to madness, even under this excellent writer's own explanation: for of the three species which

*. B. II. Ch. xi. § 13.

he comprehends under this disease as a genus, viz. mania *furibunda*, mania *mitis*, and melancholia, while the last, as he afterwards illustrates it*, evinces these symptoms only occasionally, he expressly tells us of the second, that the diseased are "all happy, gay, and cheerful; that "good humour characterizes this insanity, and hence the patients are in general very tractable"†.

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but his definition not true to his own history,

But the chief objection to Sir A. Crichton's definition of insanity, is his limiting it, in respect to the mental faculties, to the power of perception while the judgment remains totally unaffected. "In regard to lunatics", says he, in another place, "and men who are of a sound mind, the faculty of judging *is the same in both*, but they have different perceptions, and their judgements therefore, must be different"‡.

and not sufficiently comprehensive in limiting the disease to the faculty of perception.

Now if the faculties of perception, attention and memory be liable to derangement, as the same writer admits, and there be "a *general* derangement of mental faculties in insanity", there seems no sufficient ground for exempting the faculty of judgement. And a little attention to the history of an insane patient will, I think, sufficiently support the opinion of Mr. Locke and Dr. Cullen upon this point, and show that this, if not the faculty chiefly diseased, labours under at least as much disease as that of perception.

We have already observed in the proem to the present class, that all the powers of the mind are as liable to be affected with diseases, and diseases of various kinds, as those of the body; and that either the body or the mind may be enfeebled at the same time in the whole of its powers, in a few of its powers, or in a single power. A sound mind supposes an existence of all the mind's feelings and intellectual powers in a state of vigour and under the subordination of the judgement, which is designed by nature to be the governing or controlling principle. And thus constitut-

All the faculties of the mind, like all the organs of the body, capable of being diseased:

* Of Mental Derangement, Book III. Ch. III. Vol. II.

† Id. Book I. Ch. V. pp. 181, 182. Vol. I.

‡ Id. Vol. I. p. 401.

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ed, the mind is said to be in a state of order or arrangement. It often happens that this order or arrangement is slightly broken in upon by natural constitution, or some corporeal affection; but so long as the irregularity does not essentially interfere with the mental health, it is no more attended to than slight irregularities or disquietudes of the body. Yet whenever it becomes serious and complicated, it amounts to a disease, and the mind is said, and most correctly so, to be deranged or disordered.

but slight derangements in either little attended to, as not essentially interfering with the mental or bodily health.

This derangement may proceed from a morbid state of any of the intellectual or any of the empassioned faculties of the mind, for the perception may not correctly convey the ideas we receive by the external senses, or the judgement may lose its power of discriminating them; or the memory may not retain them, or the imagination or the passions may be in a state of unruly excitement: all which will lay a foundation for different kinds or genera of diseases, and in fact form the foundation of those appertaining to the present order.

Upon this principle the ensuing genera are founded.

Now an attentive examination into the habits of an insane person will show first, that the judgement and the perception are BOTH injured during the existence of insanity; and next that though, from a violent or complicated state of the disease, the morbid condition often extends to some other, or even to all the other mental faculties, yet it does not necessarily or essentially extend to them; for a madman may be furious or passionate, yet every madman is not so; his memory may fail or his attention be incapable of fixing itself, or his imagination be wild and extravagant, but these do not always occur. The faculties, however, of the judgement and the perception are affected in every case, though they are not always equally affected at one and the same time: for the morbid power seems, for the most part, unaccountably to shift in succession from the one to the other, so as alternately to leave the judgement and alternately the perception free or nearly free from all estrangement whatever, the disease being, however, always accompanied with irregular remissions; and often with such a diminution of sensibility

The judgement and perception both diseased in insanity,

and sometimes, though not necessarily, other mental powers:

nor are the judgement and perception always equally affected at the same time.

that the patient is uninfluenced by the effects of cold, and hunger, and very generally unsusceptible of febrile miasm. Gen. I. Ephronia. Insanity. Craziness.

Thus a madman will often mistake one person who is introduced to him for another, and under the influence of this mistake will reason correctly concerning him, and although he may have been for years his next neighbour, will ask him when he came from China or the East Indies, by what ship he returned home, and whether his voyage has been successful. In all which the error may be that of the perception alone. But if, as is frequently the case, the patient address his visitor by his proper name, he gives a ground for believing that he perceives him aright, and that the error is that of the judgement, which thus unites incongruous ideas, applying a visionary history to a real and identified person. At another time, he may, from the first, perfectly recognize the individual so presented to him; and to prove his recollection and the correctness of his perception, may rapidly run over a long list of his relations, and a long string of anecdotes respecting his former life: after which he may suddenly start, and looking at the visitor's walking-stick, tell him that that drawn sword will never save him from destruction, nor all the men that slept with him in the same bed the night before—that his rival is now pushing forward with all speed on a black horse with a large army behind him, and that to-morrow he will fight and lose his crown. Illustrated. Further illustration.

In such a case, and it is by no means an extreme one, the perception and the judgement travel soundly and in harmony at the outset of the interview; but they soon separate and abandon each other as far as east and west. It is not always easy to say whether the fresh paroxysm of insanity that thus suddenly displays itself is limited to the one faculty or to the other, or is common to both. For if the perception suddenly wander, the judgement has a new train of ideas presented to it, and must necessarily take a new direction. Yet it is difficult to conceive how the judgement can be thus abruptly led astray if it continue sound; and hence it is more probable that Not always easy to determine which faculty is most at fault.

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the judgement itself is at fault, and admits a train of ideas which, however congruous to themselves, are incongruous to those furnished by the faculty of perception; or both may equally wander, and accompany each other in the visionary scene, as they at first associated in the real. It is obvious, however, if I mistake not, that both faculties are affected in the derangement of insanity jointly or in irregular succession.

How far a morbid state of the mental faculties may in any case depend upon the mind itself, as distinct from the sensorium or instrument by which it is connected with the body, it is impossible for us to know till we become acquainted with the nature of this connexion, and perhaps also with the essence of the mind, which, in our present state of information, seems to be a hopeless subject of inquiry. But we may possibly obtain some insight into the manner in which correct ideas of perception are changed in their nature and rendered incorrect or incongruous by a diseased judgement, by attending to a process of variation that is frequently occurring in perfect sanity and acuteness of mind. "The ideas we receive by sensation," says Mr. Locke, in adverting to this process, "are often in grown people *altered by the judgement* without our taking notice of it." And he explains this position by observing that when a ball of any uniform colour, as of gold, alabaster, or jet, is placed before the eye, the idea thereby imprinted in the mind is that only of a flat circle variously shadowed, with different degrees of light and brightness coming to the organ of sight. "But having by use been accustomed to perceive what kind of appearance convex bodies are wont to make in us; what alterations are made in the reflexions of light by the difference of the sensible figures of bodies, the judgement presently, by an habitual custom, alters the appearances into their causes; so that from that which truly is variety of shadow or colour, collecting the figure, it makes it pass for a mark of figure, and *frames to itself the perception* of a convex figure and an uniform colour"*. And the same

Correct ideas of perception how rendered incorrect by a diseased judgement:

* Hum. Underst. Book II. Ch. ix. § 8.

change occurs still more conspicuously in looking at an engraving or a picture, in which the only idea presented by the eye to the perception is that of a plane variously shaded or coloured; but which the judgement immediately changes and multiplies into other ideas of life and motion, and running streams, and fathomless woods, and cloud-capt mountains. And if in a sane state we find the judgement capable of thus varying the ideas of perception presented to it, we can have no great difficulty, I think, in conceiving by what means such a variation may be produced and may ramify into incongruities of great extravagance in a judgement deranged by disease.

GEN. I. Ecphronia. Insanity. Craziness. further explained.

Nor is there much difficulty in conceiving how the paroxysm should be subject to remissions or even intermissions more or less regular; or the derangement be limited, as we frequently find it, and especially in melancholy, to particular subjects or trains of ideas. For first all diseases have a tendency to remissions or intermissions; but those connected with the brain or nerves more than any others, as is evident in hemicrania, epilepsy, hysteria, and palpitation of the heart. And next, there is no man in a state of the most perfect sanity whose judgement is equally strong and exact upon all subjects: and few whose judgements are not manifestly influenced and led astray by partialities, or peculiar incidents of a thousand kinds; insomuch that we dare not, on various occasions, entrust to a man of the strictest honesty and the clearest head a particular subject for his decision, whom we should fly to as our counsellor upon every other occurrence. And it is not therefore very extraordinary that, in a morbid state of the mind, and particularly of that faculty which constitutes the judgement, there should be an aberration in some directions or upon some subjects which does not exist upon others.

Whence remissions or intermissions of the paroxysms in insanity. And how the disease confined at times to particular trains of ideas?

The corporeal indications differ as much as those of the mind, and generally as being governed by the latter. We have hence sometimes, as an opening symptom, an extraordinary flow of high spirits, at others extreme

The corporeal indications vary as those of the mind.

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terror. The countenance is pale and ghastly, and strongly expressive of inward emotion; the speech hurried and tremulous, and the extremities bedewed with a cold sweat. In other instances the eye glares malignantly, the face is flushed, and evinces a dreadful ferocity; the objects of terror become objects of vengeance, and the patient is furious. In some there is an unusual degree of suspicion, and an anticipation of evil, and a belief in imaginary plots or conspiracies. In others great irascibility and malignity, and a desire to commit some act of desperation, vengeance or cruelty. All this is often combined with head-ache, giddiness, throbbing of the temples, or impaired vision. There is little or no sleep, for the mind is in a state of too much excitement, though at times the patient lies listless and refuses to be roused*.

Remote cause of insanity. Whether a diseased condition of any part of the encephalon? How far this established by dissections.

Concerning therefore the remote or even the proximate cause of the disease, we have yet much to learn. From the view we have taken in the proem of the close connexion between the mind and the brain, it seems reasonable to conceive that the remote cause is ordinarily dependent upon some misconstruction or misaffection of the cerebral organs: and hence every part of them has been scrutinized for proofs of so plausible an hypothesis, but hitherto to no purpose whatever. The form of the cranium, its thickness, and other qualities; the meninges, the substance of the brain, the ventricles, the pineal gland, the commissures, the cerebellum, have all been analyzed in turn, by the most dextrous and prying anatomists of England, France, Germany, and Italy, but with no satisfactory result. The shape or thickness of the scull has been started, indeed, as a cause, by many anatomists of high and established reputation; but the conjecture has been completely disproved by others, who have found the very structures supposed to be most certain of producing madness, exist in numerous instances with perfect soundness of intellect. A particular shape of the scull seems,

* Annual Report of the Glasgow Asylum for Lunatics, 1821.

indeed, to be often connected with idiotism from birth or soon after birth, but with no other species of mental derangement whatever. GEN. I. Ecphronia. Insanity. Craziness.

Morgagni engaged in an extensive course of dissections upon this subject, and pursued it with peculiar ardour: and his results are given in his eighth epistle from the second to the eighteenth article. In some cases the brain was harder, in some softer, than in a healthy state; occasionally the dura mater was thicker, and was studded with soft, whitish bodies on the sides of the longitudinal sinus. This sinus itself sometimes evinced polypous concretions; and the pineal gland, or several of the glands in the plexus choroides were in a diseased state. Dr. Greding *, with a like spirit of investigation, arrived at a like diversity of facts. Meckel tells us that he found the brain denser and harder than usual †; Dr. Smith ‡ descried a bony concretion, and Plenciz and various others represent the brain as bony or calculous in various parts; while Jones, in the Medical Commentaries, found it softer than usual with a thickening of the membranes and a turgescence of the ventricles. From all which, nothing precise or pathognomic can be collected, since all such morbid appearances have been traced under other diseases as well as under insanity. Morgagni. Meckel. Jones. Nothing precise or pathognomic has hitherto been collected.

M. Pinel is firmly decided upon this point; and after a very extensive course of investigations he asserts, with respect to the cranium, that there are no facts yet clearly established which prove the faculties of the mind (except in the case of idiotism) to be, in any degree, influenced by its size, figure, or density: while with respect to the contents of the cranium, "I can affirm", says he, "that I have never met with any other appearances within the cavity of the scull, than are observable on opening the bodies of persons who have died of apoplexy, epilepsy, nervous fevers, and convulsions:" and his successors M. Pinel.

* Vermischte medicinische und chirurgische Schriften. Altenb. 1781.

† Hist. de l' Acad. Royale des Sciences, &c. Ann. 1760. Berol. 4to. 1761.

‡ Med. Observ. and Inquir. Vol. VI.

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Esquirol and M. Georget concur in the same remarks. The last, after having examined three hundred lunatics on their decease, to settle the point before us, thus concludes: "Toutes les alterations que nous avons observées sur les aliénées de la Salpétrière sont consecutives au développement de la folie, excepté celles des cerveaux d'idiotes, qui sont primitives et liées à l'état intellectuel."

Haslam.

The observations of Haslam are nearly to the same effect: for they concur in showing that, except in so considerable a misformation of the scull or its contents, as to induce idiotism from an early period of life, as in the case of cretinism, nothing decisive can be obtained in reference to insanity from any variations of appearance that have hitherto been detected.

Greding.

The dissections of Greding extended to not fewer than two hundred and sixteen maniacal patients, the whole of whom, however, died of disorders unconnected with their mental ailments: three of the heads were exceedingly large, two exceedingly small; some of the scull-bones extremely thick, others peculiarly thin; in some, the frontal bones were small and contracted, in others, the temporal bones compressed and narrow *.

What periods of life most subject to insanity.

In a table containing an aggregate of the patients received into the lunatic asylum at Bicêtre during a considerable part of the French revolution, from 1784 to 1792, by far the greatest number admitted were between the ages of thirty and forty: next, those between forty and fifty; next to these, patients between twenty and thirty; then those from sixty to seventy; and lastly, those from fifteen to twenty; below which we have no account of any admission whatever. Hence different stadia of life seem to exercise some control, and the period most exposed to the disease is that in which the influence of the passions may be conceived to be naturally strongest and most operative. "Among the lunatics confined at Bicêtre," says M. Pinel, "during the third year of the republic, and whose cases I particularly examined, I ob-

* Vermischte Schriften, ut suprà.

served that the exciting causes of their maladies, in a great majority of instances, were extremely vivid affections of the mind; as ungovernable or disappointed ambition, religious fanaticism, profound chagrin, and unfortunate love. Out of one hundred and thirteen madmen, with whose histories I took pains to make myself acquainted, thirty-four were reduced to this state by domestic misfortunes: twenty-four by obstacles to matrimonial unions which they had ardently desired to form; thirty by political events connected with the revolution; and twenty-five by religious fanaticism." Those were chiefly affected who belonged to professions in which the imagination is unceasingly or ardently engaged, and not controlled in its excitement by the exercise of the tamer functions of the understanding, which are more susceptible of satiety and fatigue. Hence the Bicêtre registers were chiefly filled from the professions of priests, artists, painters, sculptors, poets, and musicians: while they contained no instances of persons whose line of life demands a predominant exercise of the judging faculty: not one naturalist, physician, chemist, or geometrician.

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What temperaments chiefly predispose or pursuits excite the disease.

But there are other organs that also betray very prominent signs of diseased action in insanity as well as the brain, as those of the epigastrium and the adjoining regions: and hence other physiologists have sought for a remote or even a proximate cause of the malady in these, rather than in the encephalon. This was the case among several, though not the majority, of the Greek physicians as we have seen already: and it is to this quarter that M. Pinel refers the proximate cause in almost every instance in our own day. It is here he supposes the disease to commence, and contends that the affection of the brain and of the mental faculties is subsequent to the abdominal symptons, and altogether dependent upon them: and in proof of this he adverts to various dissections which have shown a considerable derangement, not only in the function but even in the structure of one or more of the abdominal organs, and particularly a displacement of the transverse colon.

Whether originating from a diseased condition of the epigastric or other abdominal organs.

Common proximate cause of Pinel.

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Encephalon and abdominal organs often affected jointly: and the disease seems occasionally to originate in either.

But this is to give a weight to the morbid appearances occasionally manifested in these organs, above what is allowed to like misformations in the cranium. Yet there can be no doubt that, in most cases of insanity, the brain and epigastrium suffer jointly; and that the disease may, and often does, commence in some structural or functionary affection of the abdominal organs is perfectly clear from the frequency of this complaint during pregnancy and in child-bed: its being connected with a peculiar state of the genital organs, as we shall presently have occasion to show, and its following upon a sudden suppression of the menstrual or hemorrhoidal discharge.

This association of influence explained.

Nor is it difficult to account for this association of influence from the extensive distribution of the par vagum, and more particularly of the intercostal nerve over the abdominal viscera: on which account a like sympathy is by no means uncommon in various other disorders. Thus while a concussion or compression of the brain produces nausea, sickness, and constipation, worms are frequently found to excite convulsions or epilepsy.

Inference from the general inquiry.

The fair result of the whole inquiry appears to be, that insanity, in every instance, to adopt the language of Sir A. Crichton, "arises from a diseased state of the brain or nerves, or both*": but that in many instances this diseased state is a primary affection, and in others a secondary, dependent upon a morbid condition of the epigastric or some other abdominal organ: for, in whatever this morbid condition may consist, and whatever symptoms it may evince, it is not till the sensorium has by degrees associated in the chain of unhealthy action that the signs of insanity are unequivocal. And, in like manner, dyspeptic and other abdominal symptoms are not unfrequently brought on by a previous diseased state of the mind: and it is hence peculiarly difficult, and perhaps in some cases altogether impossible, to determine, where we are not acquainted with the incipient symptoms, whether melancholy or hypochondrias, has originated in

* On Mental Derangement, Vol. i. p. 138.

the state of the abdominal viscera or of the cranium; or in other words, whether the one or the other be a primary or a secondary affection.

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When, however, we are made acquainted with the history of the incipient symptoms, we have a tolerable clue to guide us; and, for the most part may safely decide that the region primarily affected, is that which first evinces morbid symptoms: and hence, while we shall have little scruple in assigning the origin of most cases of hypochondrism to a morbid condition of one or more of the digestive organs, we need have as little in assigning the greater number of cases of mania to a primary misaffection of the brain or the nerves.

Where the history of the incipient symptoms are clear, the disease may be assigned to its primary seat.

In what that misaffection consists is a question that has never been settled to the present hour, and from our total inacquaintance with the nature of the connexion between the brain and the mind, it never will be in any very satisfactory manner. The morbid changes, indeed, which we have already seen are frequently to be traced in the structure of the brain, show very sufficiently that a considerable degree of diseased action has been taking place there; but as these changes are also found in other disorders of the head as well as in mania, and more especially as we cannot tell whether they have preceded or been produced by such action, they give us little information as to the nature of the diseased action itself.

Proximate cause of insanity.

Dr. Cullen has offered a series of ingenious arguments to prove that mania consists in some inequality in the excitement of the brain*, or of the nervous power †, and in most cases in an increased excitement. Dr. Cullen's idea of the nervous power, as we have already had occasion to observe, is very far from being explicit: for he defines it "a subtile very moveable fluid *included* or *inherent* in a manner *we do not clearly understand* in every part of the medullary substance of the brain and nerves." While in other parts of his writings he represents it as never

Cullen's hypothesis.

* Pract. Phys. Vol. IV. Aph. MDLXII.

† Id. MDXLIV.

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either recruited or exhausted, and thus conceives it to possess qualities beyond the ordinary endowments of living matter. Yet his general principle appears to be well founded, and Sir Alexander Crichton has availed himself of it in giving a fuller explanation of this highly probable hypothesis: and, after appealing to the doctrine which has already been advanced and supported in the preceding pages of the present work, that the nervous power is a peculiar fluid secreted in the medullary substance of the brain or the nerves, he endeavours to show that the cause of insanities is a specific morbid action of the vessels which secrete the nervous fluid in the brain *; and which may hereby be altered not only in quantity but in quality †.

Crichton's hypothesis highly probable; and concurrent with the pathological doctrines of the present work.

From the quickness of the external senses, the irascibility, heat of the skin, flushed countenance, and uncommon energy which maniacs evince, we have reason to believe this morbid action to be, for the most part, a preternaturally increased action; and we are hence able to account for the various exacerbations and remissions which it evinces, sometimes periodically, and sometimes irregularly. Yet as the health of the faculties of the mind must depend upon a healthy energy of the vessels, too scanty a secretion of nervous fluid must be as effectual a cause of mental derangement as too copious a flow: and hence torpor of the vessels of the brain may prove as certain a cause of a wandering mind as entony, and, consequently, typhous fever may become a source of delirium as well as inflammatory. And as the various secretions can only be elaborated from the blood, and are often affected by its condition, we may see also how madness may be a result of acrid narcotics and other poisons introduced into the blood by absorption, or a transfusion of blood from animals of a different nature, of which Dionis has given some very striking examples.

Proofs that the sensorial power is some-

That there is a tendency not only to an increased

* Of Mental Derangement, Vol. I. p. 174.

† Id. Vol. I. p. 169.

secretion of sensorial power in the head in most cases of insanity, but to an accumulation of it from all parts of the body, and especially from the surface, is clear from the patient's diminished sensibility to external impressions, and his being able to endure the severest winter's cold, and a fasting of many days without inconvenience or indeed consciousness. But that there is, in some cases, a diminished secretion of this fluid producing a general debility of the living fibre, is also clear from the great tendency manifested by some maniacs, whose brain gives no proof of increased excitement, to a gangrene in their extremities, and, where they are uncleanly, about the buttocks. The insensibility from this cause is sometimes so considerable as to affect, not only the diffuse organ of feeling, but some of the local senses as well. And hence some patients lose their hearing, and others are capable of staring at the meridian sun without pain, or any change in the diameter of the iris *. Sometimes, however, the increased secretion of sensorial power is so considerable as not only to affect the head, but to augment the corporeal sensibility generally. And hence Hoffman makes accumulated sensation an ordinary symptom of this disease †, mistaking the exception for the general rule: and Riedlin gives us an instance of a maniac, who, instead of calling for and being able to endure large quantities of snuff, sneezed and was convulsed on smelling the mildest aromatics ‡.

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times increased in insanity.

Proofs that it is sometimes diminished.

It is a melancholy reflection that insanity is often the result of an hereditary predisposition. This, indeed, has been denied by a few writers; but their opinion has unhappily been confuted by the concurrent voice of those who have thought differently, and the irresistible evidence of daily facts. Mysterious as the subject is we have perpetual proofs that a peculiarity of mental character is just as propagable as a peculiarity of corporeal; and hence wit, madness, and idiotism are as

Insanity often a result of hereditary predisposition.

Illustrated.

* Blumenb. Bibl. I. p. 736.
† Opp. Suppl. II. 2.
‡ Lin. Med. 1696. p. 29.

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distinctly an heir-loom of some families as scrophula, consumption and cancer of others. In most of the latter we have already observed that something of a constitutional make or physiognomy is often discernible; and the same is contended for by many authorities in the disease before us. Yet, if we examine the marks accurately we shall find that they merge, for the most part, into the common symptoms of a sanguineous, or a melancholic temperament: either of which constitutions exercises such a control over the disease as to give it a peculiar modification whatever be the nature of the exciting cause; which is in truth of little importance to the constitutional turn the malady may take, though well worth attending to in the moral treatment. "The violence of the maniacal paroxysm", observes M. Pinel, "appears to be independent of the nature of the exciting cause; or at least, to be far more influenced by the constitution of the individual, and the peculiar degree of his physical and moral sensibility. Men of a robust constitution, of mature years, with black hair, and susceptible of strong and violent passions, appear to retain the same character when visited by this most distressing of human misfortunes. Their ordinary energy is augmented to outrageous fury. Violence, on the other hand, is seldom characteristic of the paroxysms of individuals of more moderate passions, with brown or auburn hair. Nothing is more common than to see men with light-coloured hair sink into soothing and pleasureable reveries; while it seldom or never happens that they become furious or unmanageable. Their pleasing dreams, however, are at length overtaken by, and lost amidst the gloom of an incurable fatuity. Those of the greatest mental excitement, of the warmest passions, the most active imagination, the most acute sensibility, are chiefly predisposed to insanity. A melancholy reflection!—but such as is calculated to call forth our best and tenderest sympathies."

Whether manifested by external signs.

Modification of the disease more affected by the temperament than by the exciting cause. Illustrated.

Insanity whether more common to

It has long been a current opinion that insanity is a disease more common to our own country than to any

other: and this opinion has of late been rendered more seriously alarming by the following assertion of Dr. Powell, secretary to the commissioners for licensing lunatic establishments, and which is given as the result of his official tables of returns from 1775 to 1809 inclusive, divided into lustra or periods of five years each. "Insanity appears to have been *considerably* upon the increase: for if we compare the sums of two distant lustra, the one beginning with 1775, and the other ending with 1809, the proportion of patients returned as having been received into lunatic houses during the latter period, is to that of the former nearly as 129 to 100." "The facts also", says he, "which present themselves to the observation of the traveller, whatever direction he may take through this country, and all the local information which we receive upon the subject supply us, as I am led to think, with sufficient proof that the increase must actually have been *very considerable*, though we cannot ascertain what has been its exact proportion" *.

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England than other countries?

and whether of late an increasing malady?

The first part of this opinion, or that which regards insanity as a disease PECULIARLY PREVALENT in England, does not seem to rest on any established basis: for, calculating with Dr. Powell, that the number of lunatic paupers, and those received into public hospitals, which, under the act of parliament are not cognisable by the commissioners, together with those neglected to be returned, compared with the returns entered into the commissioners' books, bear the proportion of three to two, which is probably far above the mark, still the aggregate number of insane persons for the year 1800, contrasted with the general census for the same year, will only hold a ratio of about 1 to 7300: while if we take with Dr. Burrows, the proportion of suicides committed in foreign capitals as a test of the extent to which insanity is prevalent in the same towns, which is nevertheless a loose mode of reckoning, though it is not

Is not a prevalent disease nor apparently so prevalent as in many other countries.

* Med. Trans. Vol. IV. p. 131. Art. Observations on the Comparative Prevalence of Insanity at different periods.

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easy to obtain a better, we have reason to conclude that insanity is comparatively far less frequent among ourselves than in most parts of the continent: the suicides of Paris, Berlin, and Copenhagen, as drawn from tables collected by Dr. Burrows for this purpose, being in proportion to the relative population of London as 5 to 2 for the first, 5 to 3 for the second, and 3 to 1 for the third *.

Nor an increasing disease.

Nor does the idea that insanity is an INCREASING DISEASE in our own country appear to rest on a stabler foundation. Taking Dr. Powell's result as drawn from full and incontrovertible data, and comparing the supposed march of the disease with the acknowledged march of the population, although the former may possibly be said to have overstepped the latter by a few paces, the difference will hardly justify the assertion, that "insanity is considerably upon the increase." And if we take into view the intensity of interest with which this subject has for the last twenty years been contemplated by the public, the operation of those feelings of humanity which have dragged the wretched victims of disease from the miserable abodes of prisons and neglected workhouses, and placed them under the professional care of the superintendants of licensed establishments, and above all, the augmented number of such establishments in consequence hereof, and the great respectability of many who have the management of them, thus giving the commissioners returns which by the power of their Act of 26 Geo. III. they could not otherwise have been in possession of, we may, I think, fairly conclude that this apparent overstep, be it what it may, in the march of insanity beyond that of the population of the country, is a real retrogression.

Examination of Powell's data which have led to a contrary conclusion.

Admitted by the writer himself to be inaccurate;

At this conclusion, we might, I think, fairly arrive, even if the data selected by Dr. Powell were full and incontrovertible; but he himself has candidly admitted, that instead of being full and incontrovertible they "are sub-

* Inquiry into certain errors relative to Insanity, &c. p. 93. 8vo. 1820.

ject to numerous inaccuracies, and that any deductions which may be made from them must be imperfect." It is still more consolatory to learn that the direct deductions from the parochial and district establishments are not only not in accordance with Dr. Powell's, but such as seem to show that a retrogression, instead of an advance, has actually taken place. Dr. Burrows has industriously collected many of these, and, as far as they go, they lead to such an inference almost without exception *. Yet it is probable that even this inference does not give us the precise fact, and that it is as chargeable with an error on the favourable side, as the opposite account is on the unfavourable; since the increase of licensed houses, whose returns seem to have swelled the list of the commissioners beyond its proper aggregate, has been considerably supported by a transfer from the establishments which have thus fallen off. And hence, allowing the error on the one side to compensate that on the other, we are brought to the conclusion which, after all, appears more natural, that the career of insanity is only varied in its uniformity by temporary contingencies, but that it is by no means a prevalent disease in our own country.

Gen. I. Ecphronia. Insanity. Craziness.

and opposed by other tables of Burrows which seem to prove a retrogression rather than advance.

General result.

SPECIES I.

ECPHRONIA. MELANCHOLIA.

Melancholy.

THE DISCREPANCY BETWEEN THE PERCEPTION AND THE JUDGEMENT LIMITED TO A SINGLE OBJECT, OR A FEW CONNECTED OBJECTS, OR TRAINS OF IDEAS: THE WILL WAYWARD AND DOMINEERING.

WE have already stated that whatever be the exciting cause of mental alienation, the symptoms are, in every

Gen. I. Spec. I. Disease modified by the idiosyncrasy.

* Inquiry, &c. ut supr. p. 66 et alibi.

Gen. I. Spec. I. Ecphronia. Melancholia. Melancholy.

instance, greatly modified by the prevailing idiosyncrasy, and hence, though a love of solitude, gloom, fear, suspicion and taciturnity are the ordinary signs of the present species, these signs often yield to symptoms widely different, and sometimes even of an opposite character; and we hence become possessed of the four following varieties:

α Attonita. Gloomy melancholy.	Mute, gloomy, retiring melancholy.
β Errabunda. Restless melancholy.	Roving, restless melancholy, evincing a constant desire to change the abode.
γ Malevolens. Mischievous melancholy.	Morose or mischievous melancholy; occasionally terminating in suicide or the injury of others.
δ Complacens. Self-complacent melancholy.	Self-complacent and affable melancholy: occasionally rejoicing in a visionary superiority of rank, station, or endowment.

These varieties observed by Fracastorio.

The same variety of symptoms, as chiefly modified by the prevailing temperament, are noticed by Fracastorio. "The phlegmatic", says he, "are heavy; the sanguine, lively, cheerful, merry, but not witty; the choleric are in rapid and perpetual motion, impatient of dwelling upon any subject. An acuteness of wit belongs to most of the varieties, but not to all"*. And hence Diocles in opposing Galen for holding, after Hippocrates, that gloom and terror are pathognomic signs of melancholy, observes, "Upon serious consideration I find some patients that have nothing of these qualities: and others that exhibit every diversity of feeling: for some are sad without being fearful; others fearful without being sad; some neither, and some both."

By Diocles.

Singular modification

Besides these modifications there is another of a very

* De Intellectione. Lib. II.

peculiar kind noticed by Dr. Spurzheim in order to show that the faculties of the mind are double, and that each hemisphere of the brain contains a distinct set. As I have never met with an instance of this variety I must describe it in his own words. "Tiedemann," says he, "relates the example of one Moser, who was insane on one side, and who observed his insanity with the other. Gall attended a minister who, having a similar disease for three years, heard constantly on his left side reproaches and injuries, and turned his head to that side in order to look at the persons. With his right side he commonly judged of the madness of his left side: but sometimes in a fit of fever he could not rectify his peculiar state. Long after being cured, if he happened to be angry, or if he had drank more than he was accustomed to do, he observed, in his left side, a tendency to his former alienation"*.

Gen. I. Spec. I. Ecphronia. Melancholia, Melancholy. noticed by Spurzheim.

It may appear strange to those who have not studied the subject with much attention that persons who are possessed of a diseased or even a defective judgement should at any time be of quick and lively apprehension, and thus be witty without being wise. But the faculty of wit is dependent not so much on the judgement as on the imagination, and particularly on the memory, on the possession of a large stock of ideas stored up for ready use, and brought forth with rapidity. "And hence," says Mr. Locke, "some reason may perhaps be given of that common observation, that men who have a great deal of wit and prompt memories, have not always the clearest judgement or deepest reason. For wit lying most in the assemblage of ideas, and putting those together with quickness and variety, wherein can be found any resemblance or congruity, thereby to make up pleasant pictures and agreeable visions in the fancy; judgement, on the contrary lies quite on the other side, in separating carefully, one from another, ideas wherein can be found the least differ-

How wit or shrewdness of remark may exist with little judgement.

Illustrated from Locke.

* Physiognomonical System, &c. p. 144. 8vo. 1816.

GEN. I. SPEC. I. Ecphronia. Melancholia. Melancholy.

ence, thereby to avoid being misled by similitude, and by affinity to take one thing for another"*. And hence, we may easily account for that gaiety and those ebullitions of a vivid fancy which so often assume the character of wit in persons whose minds are deranged, and especially in the sober faculty of the judgement.

Hence the occasional vivacity of insane persons.

Mirth and wit, however, though sometimes found in the present species of insanity, are by no means its common characters; but on the contrary, as we have already observed, a love of solitude, gloom, and taciturnity, and an indulgence in the distressing emotions of the mind. And hence, whenever hypochondrism merges into actual insanity, it almost always takes this form; as melancholy, from a sort of natural connexion between the two, often assumes many of the symptoms that essentially appertain to the hypochondriac disease; the morbid state of the brain influencing the abdominal organs in the latter case, as the morbid state of the abdominal organs influences the brain in the former.

Yet taciturnity and gloom more common to them.

Common progress of melancholy.

The disease shows itself sometimes suddenly, but more generally by slow and imperceptible degrees. Among the earliest symptoms may be mentioned head-aches, frequent attacks of giddiness, sudden confusion of ideas, a great disposition to anger, violent agitations when irritated, and an uncommon sensibility of nerves, whereby the patient is apt to be carried to as great excesses from causes of joy as from those of grief. There is a desire of doing well, but the will is wayward and unsteady, and produces an inability of firmly pursuing any laudable exertion or even purpose, on account of some painful internal sensation, or the perverseness of the judgement led astray by false or erroneous ideas which command a firm conviction in the mind†. And if the disease occur in a person possessing that temperament which has been conceived to predispose to it, and was by the Greeks denominated melancholic, the external signs become peculiarly marked

External signs sometimes very strong.

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* On Human Understanding, Book II. Ch. xi. § 2.

† Crichton, of Mental Derangement, passim.

Gen. I. Spec. I. Ecphronia. Melancholia. Melancholy.

and prominent, "the patient", says Hippocrates, in his book on insanity, "is emaciated, withered, and hollow-eyed: and is at the same time troubled with flatulency and acid eructations, with vertigo and singing in the ears: gets little sleep, and when he closes his eyes is distracted with fearful and interrupted dreams."

α E. Melancholia attonita. Mute retiring melancholy.

The FIRST VARIETY most commonly commences with this character, and creeps on so gradually that it is for some time mistaken for a mere attack of hypochondrism or lowness of spirits*, till the mental alienation is at length decided by the wildness of the patient's eyes, the hurry of his step whenever he walks, his extraordinary gestures, and the frequent incongruity of his observations and remarks. The first stage of the disease is thus admirably expressed by Hamlet: "I have of late, but wherefore I know not, lost all my mirth, forgone all custom of exercise; and indeed, it goes so heavily with my disposition, that this goodly frame, the earth, seems to me a sterile promontory; this most excellent canopy, the air, look you, this brave o'erhanging firmament, this majestical roof fretted with golden fire, why it appears no other thing to me than a foul and pestilent congregation of vapours."

Often commences gradually and is mistaken for hypochondrism.

Well described in Hamlet.

Predominance of some single trains of ideas.

But while the external world is thus in general falsely recognized by the perception or falsely discriminated by the judgement, the mind is so completely possessed by some particular trains of imaginary ideas that the attention is perpetually turned to them, and the judgement mistakes them for substances; and, so far as it is sensible of surrounding objects or scenery, is perpetually blending the vision with the reality. It is not that the patient's ideas are incongruous with themselves but with the world around him; for the remarks of the melancholy man, when his attention is once correctly fixed, are for the most part peculiarly shrewd and pointed. But in the gloom that hangs over him under the variety we are now contemplating, he can rarely be brought into conversation, seeks for solitude,

Love of silence and solitude.

* Falret, de l'Hypochondrie et du Suicide, passim. 8vo. Paris, 1822.

GEN. I. SPEC. I. a E. Melancholia attonita. Mute retiring melancholy as noticed by Hippocrates.

sits moping in one continued posture from morning to night; or if he walk at all, seeks for orchards, back-lanes, and the gloomiest places he can find. "One of the chief reasons", says Hippocrates in his epistle to Philopœmenes, "that induced the citizens of Abdera to suspect Democritus of craziness, was that he forsook the city, and lived in groves and hollow trees, upon a green bank by a brook side, or by a confluence of waters all day and all night."

Extreme case from Sauvages.

Sauvages under the variety of melancholia *attonita* gives an extreme case of the present modification, though not from personal knowledge. "The patient", says he, "never moves from place to place nor changes his posture; if he be seated he never stands up; if standing he never sits; if lying he never rises. He never moves his feet unless they are pushed aside by a bye-stander: but he does not shun the presence of man; if asked a question he does not answer, and yet appears to understand what is said. He does not yield to admonition nor pay any attention to objects of sight or touch: he seems immersed in profound thought, and totally occupied by foreign matters. Yet at times he is more awake: if food be put to his mouth he eats, and if liquor be presented he drinks." M. de Sauvages then adds, that this rare modification of the disease occurred once to Dr. James, physician to the elector of Saxony, in a man about thirty years old, who was terrified with the thought that the Deity had condemned him. It continued for four months during the autumn and winter; but the patient was at length restored to his right understanding*.

Exciting causes.

Grief, and particularly for the loss of friends, discontent, severe disappointment, the dread of some real or imaginary evil, a violent and long continued exertion of any of the passions, and deep uninterrupted study, have frequently proved accidental causes or accessories of this variety of melancholy, where the peculiarity of the con-

* Nosol. Med. Class VIII. Ord. III.

Gen. I. Spec. I. a E. Melancholia attonita. Mute retiring melancholy. Striking exemplification from Magendie.

stitution has formed a predisposition, and have sometimes produced it even where no such predisposition can be traced. M. Magendie met with a singular exemplification of this from a cause few would expect, though not difficult of solution. The patient, an intelligent and agreeable man, though of a highly nervous temperament, had the misfortune, at the age of thirty-six, to meet with various crosses in business, and to have his wife become deranged in her confinement with her first child. All his energies were devoted to the recovery of his wife, whom he accompanied in travelling, which was recommended to her; he nursed her with tender assiduity, and was a witness to all her sufferings of body and mind. In time she recovered; but he himself, instead of giving way to joy, fell into a state of the most distressing melancholy—believed himself ruined, pursued by the officers of the police, and about to take his trial for some heinous offence. Upon every other subject his mind was sound. We have already observed, that the sudden cessation of any habitual drain, or other corporeal irritation, has occasionally proved a cause of melancholy; and we here find, that there is at times as much danger in a sudden cessation of mental as of corporeal irritation, the excited mind being as little capable of bearing the change in the one instance as in the other. And hence whenever such an effect occurs in an irritable frame, the individual should be instantly roused to some new pursuit that may swallow up, though more agreeably, the whole of the surplus of sensorial power he has been in the habit of secreting. In the state above-described, M. Magendie's patient continued for many months, when, from some unknown cause, the disease upon the mind was thrown upon the motific fibres; and he was attacked with a chorea; the intellect recovering its powers as the muscles of loco-motion were more and more thrown into the most ridiculous but involuntary gesticulations. He was restored from this and to perfect health by the use of tonics, and especially the sulphate of quinine*.

Explained.

* Magendie. Journ. de Physiologie. Avr. 1822.

GEN. I. SPEC. I. α E. Melancholia atonita. Mute retiring melancholy.

Other excitements by which the present species is produced are immoderate exercise; insolation, or long exposure to the direct rays of the sun; sudden transitions from heat to cold; powerful stimuli applied to the stomach.

In the case related by Sauvages the disease appears to have proceeded from a heated imagination exercised upon false views of religion: and perhaps there is no cause more common or more operative, especially in timid minds; and more particularly still where the conscience is alarmed by a review of a long catalogue of real delinquencies, and a dread of eternal reprobation.

Illustrated in the Abbé de Rancé:

Few persons have given a more striking example of this than the Abbé de Rancé when first touched with remorse for the enormity of his past life, and before the disturbed state of his mind had settled into that turn for religious seclusion and mortification which produced the

and the austerities of La Trappe.

appalling austerities of La Trappe. "To this state of frantic despair", says Dom Lancelot in his letter to La Mere Angelique of Port Royal, "succeeded a black melancholy. He sent away all his friends and shut himself up in his mansion at Veret, where he would not see a creature. His whole soul, nay even his bodily wants, seemed wholly absorbed in a deep and settled gloom. Shut up in a single room he even forgot to eat and drink: and when the servant reminded him that it was bed-time, he started as from a deep revery, and seemed unconscious that it was not still morning. When he was better he would often wander in the woods for the entire day, wholly regardless of the weather. A faithful servant, who sometimes followed him by stealth, often watched him, standing for hours together in one place, the snow and the rain beating on his head; whilst he, unconscious of them, was wholly absorbed in painful recollections. Then, at the fall of a leaf, or the noise of the deer, he would awake as from a slumber, and, wringing his hands, hasten to bury himself in a thicker part of the wood; or else throw himself prostrate, with his face in the snow, and groan bitterly.

β E. Melancholia errabunda. Restless melancholy.

The same causes operate in the production of ROVING or RESTLESS MELANCHOLY, forming the second variety,

Gen. I. Spec. I. β E. Melancholia errabunda. Restless melancholy.

and exhibiting a modification which often depends obviously upon a difference of idiosyncrasy, though the cause is not always to be explained, and under the operation of which the patient has a constant desire to change his pursuit or his residence. And hence, while Albert Durer is entitled to the approbation he has so long received for his admirable picture of melancholy under the guise of a pensive female leaning on her arm with fixed looks and neglected dress, Shakspeare has equally copied from nature in his description of the beautiful and interesting Ophelia, who, instead of shutting herself up from the world, and seeking silence and solitude, is represented as peculiarly busy and talkative, and unwittingly divulging the fond secret of her distraction to every one she meets, as well in verse as in prose. Sadness is the prevailing colour of the mind; but it is often as Jaques expresses it, "a most humourous sadness", so blended with sallies of pleasantry and wit, that it is impossible to listen to them without smiling, notwithstanding the gravity of the occasion. "Humorous they are", says Burton (and unhappily for himself no one knew how to describe the disease better), "beyond all measure; sometimes profusely laughing, extraordinary merry, and then again weeping without a cause; groaning, sighing, pensive and almost distracted. Multa absurda fingunt et à ratione aliena *; they feign many absurdities, void of all reason: one supposeth himself to be a dog, cock, bear, horse, glass, butter. He is a giant, a dwarf, as strong as an hundred men, a lord, duke, prince. Many of them are immoveable and fixed in their conceits; others vary upon every object heard or seen. If they see a stage-play, they run upon that a week after; if they hear music or see dancing, they have nought but bag-pipes in their brain; if they see a combat, they are all for arms; if abused, the abuse troubles them long after. Restless in their thoughts and actions, continually meditating,

Constant desire to change the abode or pursuit. Instanced in the character of Ophelia.

Often evinces a most humourous sadness.

Description from Burton.

* Frambes. Consult. Lib. i. 17.

Gen. I. Spec. I. β E. Melancholia errabunda. Restless melancholy.

—velut ægri somnia, vanæ
Finguntur species:—

more like dreamers than men awake, they feign a company of entire fantastical conceits: they have most frivolous thoughts impossible to be effected; and sometimes think verily that they hear and see present before their eyes such phantasms or goblins they fear, suspect, or conceive: they still talk with and follow them. 'They wake', says Avicenna, 'as others dream'. Though they do talk with you, and seem to be very intent and busy, they are only thinking of a toy; and still that toy runs in their mind whatever it be; that fear, that suspicion, that abuse, that jealousy, that agony, that vexation, that cross, that castle in the air, that crotchet, that whimsie, that fiction, that pleasant waking dream. If it be offensive, especially, they cannot forget it; they may not rest or sleep for it; but still tormenting themselves, Sisiphi saxum volvunt sibi suis."

Reflection from the above description in reference to Burton himself.

How melancholy a reflection that the writer of this spirited description, should have drawn many of its features from himself: and that the work from which it is copied, engaged in for the purpose of diverting his thoughts, and replete with genius, learning, and the finest humour, should only have exasperated the disease and urged the pitiable patient, as there is too much reason to fear, to an untimely end! "He composed his book," says Mr. Granger, "with a view of relieving his own melancholy, but increased it to such a degree, that nothing could make him laugh but going to the bridge-foot, and hearing the ribaldry of the bargemen, which rarely failed to throw him into a violent fit of laughter. Before he was overcome with this horrid disorder he, in the intervals of his vapours, was esteemed one of the most facetious companions in the university."

The THIRD VARIETY, in which the alienation assumes a morose or mischievous character, is perhaps the most common form under which the disease makes its appearance. Sometimes the patient is extremely passionate and

Gen. I. Spec. I. γ E. Melancholia malevolens. Morose melancholy.

will quarrel furiously with every one alike in whatever tone or manner he is addressed, and expresses himself with great violence of language, occasionally with gross unqualified abuse, but occasionally also in a style of repartee that was never evinced in a sane state. More generally, however, he selects his objects of resentment: which are, for the most part, unaccountably taken from his nearest relations and kindest friends. Against these he harbours the blackest suspicion and jealousy, believing that they are haunting him to take away his money or his life, or to put him to torture. He loads them with every term of the deadliest hatred, or scowls at them with contempt, and denounces them as fools and idiots. Under the distressing influence of this horrid form of the disease the mother abominates her infant family, and the wife her husband: the most chaste become lascivious: and lips, which have hitherto uttered nothing but the precepts and the language of piety, become grossly profane, and are the vehicles of oaths and impudence. The unhappy individuals are at the same time not only sensible of what they say or do, but occasionally sensible of its being wrong, will express their sorrow for it immediately afterwards, and say they will not do so again. But the waywardness of the will, and its want of control by the judgement, urge them forward in spite of their desire, and they relapse into the same state almost as soon as they have expressed their regret. Mr. Locke has, with great ability pointed out the proper distinction between these two faculties of the DESIRE and the WILL, and has exemplified it by the chastisement with which an indulgent father frequently finds himself called upon to visit an offending child, and which he wills to perform though his desire is in the utmost degree reluctant. The disease before us is pregnant with examples of the same kind, and strikingly shows the correctness with which this great master of his subject analyzed the human mind.

Description.

Language sometimes sarcastic,

Sometimes the vehicle of deadly hatred:

impudence and profaneness.

The patient occasionally sensible of this and expresses sorrow: but soon relapses:

the desire opposed by the will.

We have already observed that the peculiar turn or modification of the malady depends in general far less upon the immediate and exciting cause, than upon the

Case in proof that the exciting cause

Gen. I. Spec. I. γ E. Melancholia malevolens. Morose melancholy.

constitutional temperament, or some operative principle which we cannot always develope. And in proof of this it may be hinted that I have drawn the principal lineaments of the description just laid down from the case of a lady of about sixty years of age, respecting whom I was lately consulted, and whose exciting cause has been, manifestly, suppressed grief for the death of an only son, and separation from a daughter who was the remaining solace of her advancing years, in consequence of her having married a gentleman whose station is in a remote part of the globe. Possessed by nature of a high and commanding spirit, and of a peculiar degree of energy and activity, she effectually succeeded, by a violent internal struggle, in subduing the pangs that at first suffocated her; and has for several years talked of her daughter and her daughter's children, for the latter has since become a mother, without emotion. But with the loss of fine feeling for her daughter, she has lost, at the same time, all fine feeling upon other subjects; and her judgement has sunk amidst the general wreck. The love of her nearest relations has turned to contempt or hatred: the ardour and animation of her mind, which restrain her from taciturnity and retirement, have rendered her forward and invective; rational expostulation has yielded to sudden and unmeaning fits of violence and blows, and the voice of piety to exclamations that would formerly have shocked her beyond endurance. She, too, is often sensible of her doing wrong, and in letters of great sobriety and excellence, often complains of her own conduct, and the burden she is become to her friends; but the intervals of sanity are only of a few hours' duration, and with all her calmness she is sure to relapse*. For many months she was entrusted in her own house to the control of a professional female attendant, who, with great dexterity, at length succeeded in obtaining a due degree of authority over her without personal restraint; and under the regimen of perfect quiet and seclusion from the world, she seemed to be in fair way of recovery; but

produces less influence than the temperament.

* Compare with the Report of the Glasgow Asylum for Lunatics, 1821.

the mischievous fondness of her nearest relations has since removed this faithful watchwoman, and her senses have again been bartered for her liberty.

The symptoms most afflictive to the relations of the patient in this variety of insanity, is the tendency to behold them with indifference or even violent aversion, and to utter exclamations and employ language of the most offensive kind to a serious and a delicate ear; and it is the symptom apparently most unaccountable to those who have not studied the disease with much attention. I have already remarked that in insanity the corporeal sensibility is greatly diminished, but it is not more so than the moral sensibility; and as the moral sensibility disappears, all moral restraint disappears also: and for the very reason that the insane man has little feeling of cold or hunger, he has also little feeling of decency or religion. In the present variety the worst passions are in a state of excitement, and the language most freely employed is the language of the passion that predominates, and there being no longer any moral restraint, it is employed in its utmost vehemence and coarseness. And as the fond affections have given way to the irascible, it should seem to follow of course, that the greater the love or friendship formerly, the greater the hatred at present.

Tendency to violence and abusive language accounted for.

There is one consolation, however, though a small one that we may reap from this distressing contemplation, and to which the friends of the sufferer should not be indifferent. It is that, with this blunted sensibility of mind, the patient has no pain from a consciousness of his degraded condition. And it is singular to observe, what may also contribute to alleviate the distress of the sympathising heart, how completely his unconsciousness prevails even after a patient's restoration to health, so that few look back upon what they have undergone with the horror that would be expected; while many, even in the apprehension of a relapse, contemplate it, and turn their eye to the abode of misery where they were lately inmates, without dread.

This melancholy condition capable of affording one consolation.

The FOURTH VARIETY OF SELF-COMPLACENT melan-

Gen. I. Spec. I. } E. Melancholia complacens. Self-complacent melancholy.

choly is perhaps less frequent than any of the rest; but it occurs occasionally, and is often accompanied with a high-coloured and ruddy complexion, and other marks of a sanguineous habit; "Such persons", says Butler, "are much inclined to laughter, are witty and merry, conceited in discourse, pleasant, if they be not far gone, and much given to music, dancing, and to be in women's company." Aristotle gives the case of an inhabitant of Abydos, who, labouring under this variety of the disease, would sit for a whole day as if he had been upon a stage, listening to visionary actors; sometimes acting himself, and occasionally clapping his hands and laughing as overjoyed with the performance *. Such persons have not unfrequently thought themselves called upon to undertake some desperate adventure, and are exquisitely elated with the new and lofty character they are about to embrace.

Description.

The elated feeling often connected with erroneous ideas of religion.

Striking case in exemplification.

These stimulant feelings are not unfrequently connected with erroneous ideas of religion, and excite in the mind of the patient a belief that he is supernaturally endowed with a power of working miracles, or undergoing the severest mortifications without injury. The German Psychological Magazine is full of examples of this kind; and among others relates the case of a gens-d'arme of Berlin, whose name was Gragert, of a harmless and quiet disposition, but rather of a superstitious turn of mind. From poverty, family misfortunes, and severe military discipline, he brought on a series of sleepless nights, and a mental disquietude that, according to his own report, nothing could dissipate but a perusal of pious books. In reading the Bible he was struck with the book of Daniel, and so much pleased with it that it became his favourite study: and from this time the idea of miracles so strongly possessed his imagination, that he began to believe he could perform some himself. He was persuaded more especially that if he were to plant an apple-tree with a view of its becoming a cherry-tree, such was his power

* Lib. de Reb. mir.

that it would bear cherries. He was discharged from the king's service and sent to the workhouse where he conducted himself calmly, orderly, and industriously for two years, never doing any thing that betrayed insanity: at which time Dr. Pike examined him, that he might be discharged and sent to his family. He answered every question correctly, except when the subject concerned miracles: in regard to which he retained his old notions; adding however, at the same time, that, if he found upon trial after he was at home that the event did not correspond with his expectation, he would readily relinquish the thought and believe he had been mistaken; and confessed that he had already removed one error in his mind in this way; for there was an old woman whom he had at one time considered as a witch, but whom he afterwards discovered upon trial to be no such thing.

Gen. I. Spec. I. } E. Melancholia complacens. Self-complacent melancholy.

Upon the medical treatment of diseases of this kind we shall not have to say much; but as the plan chiefly adviseable for the present species is equally adviseable for the ensuing, it will be most expedient to reserve the discussion of it till the latter has been described in its order.

Medical treatment.

SPECIES II.

ECPHRONIA MANIA.

Madness.

THE DISCREPANCY BETWEEN THE PERCEPTION AND THE JUDGEMENT GENERAL; GREAT EXCITEMENT OF THE MENTAL, SOMETIMES OF THE CORPOREAL POWERS.

Gen. I. Spec. II.

This species appears under almost infinite varieties of character, of which, however, it may be sufficient to mark the following, modified for the most part by the

GEN. I. SPEC. II. Ecphronia Mania. Madness.

predisposing causes that we have already noticed, as modifying the preceding species:

α	Ferox.	Furious and violent madness.
β	Exultans.	Gay and elevated madness.
γ	Despondens.	Gloomy, despondent madness.
δ	Demens.	Chaotic madness.

Exciting causes.

The exciting causes, like the predisposing, are chiefly those already enumerated under melancholy ecphronia, as sudden and violent mental emotion; bad passions indulged habitually; false views of religion, especially the dread of reprobation and eternal punishment; sudden reverses of fortune, whether from bad to good, or from good to bad; preying anxiety, or lurking discontent; deep protracted study, unrelieved from week to week by an interchange of exercise or society, and breaking in upon the hours of sleep; unkindly child-bed; a suppression of various periodical evacuations; and sometimes even a virtuous restraint of sexual orgasm in a vigorous constitution, without taking purgative or other means to reduce the irritative entony.

Puerperal mania produced by sympathy: but the chain of sympathy not easy to be followed up.

Of these one of the most frequent causes, is that of child-bed, and recovery from child-bed, though it is not always easy to develope the immediate mode by which this change in the constitution acts upon the brain; for it has occurred not only where there has been some organic affection from puerperal fever, a sudden cessation of the lochia, or a sudden relinquishment of nursing, but where the recovery has been unattended with a single unfavourable symptom, and the mother has ardently persevered in the office of a nurse. It shows us, however, very sufficiently, how strong is the chain of sympathy between the brain and many remote organs of the body, and especially those subservient to the function of generation.

Proportionate influence of this cause: and effects on different periods.

M. Esquirol, not long ago, communicated a paper to the Société de Médecine upon this important subject, enriched with the results of the Hospital de la Salpétrière, for the years 1811, 12, 13, and 14. During these

four years, eleven hundred and nineteen women were admitted, labouring under mental derangement: of whom ninety-two (nearly an eleventh part of the whole) had become deranged after delivery, during, or immediately subsequent to the period of suckling. In the higher ranks of society the proportion of puerperal maniacs he calculates to be not less than a seventh of the whole. Of the above 92 cases, 16 occurred from the first to the fourth day after delivery: 21 from the fifth to the fifteenth; 17 from the sixteenth to the sixtieth day; 19 from the sixtieth to the twelfth month of suckling: and in 19 cases it appeared after voluntary or forced weaning.

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Of the above 92 cases, 8 were idiotic, 35 melancholic, and 49 maniacal. The respective ages were as follows: 22 from 20 to 25 years; 41 from 25 to 30 years; and 12 above 30. Fifty-six out of the ninety-two were entirely cured, and thirty-eight of these within the first six months. Fright was the most frequent cause *.

Effects on different habits and ages.

I have said that a virtuously restrained orgasm in a full habit, and where no steps have been taken to reduce the entonic vigour, has occasionally induced mania. There is a curious instance of the powerful effect of such a state related by Kemnesius in his History of the Council of Trent, which though it did not terminate in madness proved quite as fatal. In the year 1419, Rossa, nephew to the King of Portugal, and Archbishop elect, of Lisbon, was taken seriously ill at Florence. His physicians told him that his disease proceeded from an excessive irritation of the genital organs, and that he would certainly die unless he committed fornication or married. With a courage worthy of a happier issue, he resolved on death, and met it without breaking his vow of celibacy †.

Restrained orgasm a cause: strikingly illustrated from Kemnesius.

The following instance, however, will prove that mania

Additional example in the author's own practice.

* Quarterly Journal of Foreign Medicine, No. I. p. 98.

† Kemnes. Concil. Trident. Part III. De Cœlibatû sacerdotum.

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itself is sometimes a consequence of the same firmness of mind. A clergyman of exemplary character, and one of the most distinguished preachers I have the pleasure of being acquainted with, was many years ago very unexpectedly attacked with a paroxysm of mania, the cause of which it seemed impossible to unfold. He recovered in about six months, and returned to a regular and punctilious discharge of clerical duty. He is a man of exquisite taste, warm imagination, exalted and highly cultivated mind. With these qualifications, in less than a year after his recovery, he married his maid servant, and the world imagined he was gone or going out of his senses a second time. A confidential statement of his situation soon proved to myself that nothing could be more prudent or praiseworthy than the step he had thus taken, and which had excited so much astonishment among his friends. He was fully convinced, he said, though he had never communicated it to any one, that the cause of his unfortunate malady was a genital irritation, exciting to a constant desire of matrimony, which he was not in a situation to comply with, and which compelled him to exercise from day to day a severe restraint upon his feelings. On being fully restored to health, he found the same morbid propensity beginning to return. I felt, said he, it would again drive me mad if I did not relieve it, and my principles forbade me to think for a moment of relieving it immorally. To what respectable family could I now offer myself, having so lately been discharged from private confinement? The servant who lived with me was a very excellent young woman: her disposition was amiable, her mind well capable of cultivation, and her form and manners by no means unpleasing: and hence, after mature deliberation, I determined upon marrying her if she herself would venture upon so perilous a risk. He married her accordingly;—has ever since, for upwards of twenty years, enjoyed an almost uninterrupted share of health, and has been more than ordinarily happy in his family. Other examples of a like kind are to be

found in Paullini *, Martini †, and Vogel ‡; but it is unnecessary to copy them. And hence castration has been often advised, and submitted to, and occasionally with success.

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It is from a like sympathy of action between the brain and other parts of the body, that we meet with instances of the one or the other species of disease before us, produced occasionally, and, perhaps, in habits of great sensibility, by suppressed irritations of much smaller moment, as those of herpes, scabies, tinea §; a suppressed hemorrhoidal flux ‖; suppressed perspiration; suppressed plica ¶, or an ulcer of long standing suddenly dried up **.

Accidental causes of other kinds of transferred action.

FURIOUS MANIA, constituting the first variety, sometimes makes its attack very abruptly, and commences with the patient's being sensible of some indescribable movement in his head, which excites him to loud and sudden shrieks, at the same time that he runs up and down the room, and mutters something to himself that is altogether unintelligible: though the symptoms even in this abrupt and violent attack admit of much diversity.

α E. Mania ferox. Furious madness.

Sometimes commences suddenly.

More commonly, however, the disease is the work of time, and its growth is thus admirably described by Dr. Monro in his reply to Dr. Battie. "High spirits, as they are generally termed, are the first symptoms of this kind of disorder. These excite a man to take a larger quantity of wine than usual, and the person thus afflicted, from being abstemious, reserved, and modest, shall become quite the contrary, drink freely, talk boldly, obscenely, swear, sit up till midnight; sleep little, rise suddenly from bed, go out a hunting, return again immedi-

More commonly shows itself gradually.

Origin as described by Monro.

* Cent. III. Obs. 14. † Observationi, ch. II. 10.

‡ Beobachtungen, p. 9. § Act. Nat. Cur. Vol. VIII. Obs. 28. Descottes, Journ. de Med. T. LXVI. Petit, Traité Oeuvre posthume. T. III.

‖ Sanctacrux, De Melancholia, p. 29. Lentilius, Miscell. I. p. 36.

¶ Hoffman, Beschreibung der Weichselzopfes, &c. Eph. Nat. Cur. Cent. I. II. Obs. 35.

** Forestus, Lib. X. Obs. 24.

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ately, set all his servants to work, and employ five times the number that is necessary. In short, every thing he says or does, betrays the most violent agitation of mind, which it is not in his own power to correct. And yet, in the midst of all this hurry, he will not misplace one word or give the least reason for any one to think he imagines things to exist that really do not, or that they appear to him different from what they do to other people. They who see him but seldom admire his vivacity, are pleased with his sallies of wit and the sagacity of his remarks; nay, his own family are with difficulty persuaded to take proper care of him, till it becomes absolutely necessary from the apparent ruin of his health and fortune."

This picture is drawn from a rank of life something above that of mediocrity, but its general features of ebullient spirits, and hurry and bustle, and "much ado about nothing", will apply to every rank. Such a person, says Sir A. Crichton, in allusion to the present description, cannot be said as yet to be delirious, but that event soon follows, and he has then the symptoms common to the disease, symptoms which only differ from a difference in the train of thoughts which are represented in his mind. He begins to rave and talk wildly, and incoherently: swears as if in the most violent rage, and then immediately afterwards bursts into fits of laughter, talks obscenely, directs offensive and contemptuous language against his relations and those around him; spits at them; destroys every thing that comes in his way; emits loud and discordant screams and continues this conduct till he is quite exhausted. The state of rest which follows is generally short and sleepless; the patient is obstinate; he will not speak a word; and clenches his teeth if any thing be offered him to swallow; or else cunningly pretends to drink a little, but immediately squirts it out on the person who offers it. Instantly he again breaks out into all the wild and extravagant language and actions he committed before. If kept in strict coercion he has

Progressive symptoms.

often so much command over himself as to behave mildly and modestly; and were it not for the general expression of his countenance, and the peculiar glistening appearance and rapid movement of his eyes, he might impose on many of the bye-standers, and make them imagine that the frenzy was over. The length of the paroxysm and of the interval varies greatly in different individuals. But, generally speaking, the more violent the fit the sooner it ceases from exhaustion; and hence sometimes it ceases in a day or two, and sometimes runs on to a month or even more: returning at the distance of a few weeks or at certain periods of the year.

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Length of paroxysm and interval variable.

In the SECOND VARIETY OR ELEVATED MADNESS, the passions, and especially the irascible ones, are less busy, and the imagination is chiefly predominant, and at work without ceasing. It is here we most frequently trace something of the ruling pursuit of their former lives, so that the covetous man is still conversant about purchasing lands and tenements, and amuses himself with perpetually augmenting his possessions: while the devotional character is for ever engaged in a routine of prayers, fastings and ceremonies, visions and revelations, and fancies himself to be inspired and lifted into heaven. The phantoms are all of a pleasureable kind, and mostly such as afford the deluded sufferer a vast opinion of his own rank or talents. Donatus gives the case of a lady at Mantua, who conceited she was married to a king, and would kneel down and affect to converse with him as if he were present with his attendants; and if she found by chance a piece of glass in the street, she would hug it as a jewel sent her from her royal lord and husband*. He relates another case from Seneca of Senecio, a madman of considerable wealth, who thought himself and every thing about him great; that he had a great wife and great horses, and could not endure little things of any kind; so that he would be served with great pots to drink out of; great hosen, and great shoes

β E. Mania exultans. Elevated madness.

Train of thoughts frequently relates to the pursuits of former life.

Phantoms of a pleasureable kind; often amorous.

Illustrated.

* De Hist. Med. Mirab. Lib. ii. Cap. i.

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bigger than his feet: "Like her", says Burton, "in Trallian, that supposed she could shake all the world with her finger, and was afraid to clench her hand lest she should crush the world to pieces like an apple" *.

The illusion often unconnected with the cause of the disease.

Yet even here the train of thoughts or ideas which occupies the mind of the maniac in many instances throw no light whatever on the nature or origin of the complaint; and we can still less avail ourselves of them than in various cases of melancholy.

γ E. Mania despondens. Despondent madness.

This is particularly observable in the THIRD VARIETY or DESPONDENT MADNESS; for though this modification of the disease may occasionally be produced by suspicion, terror, or a guilty conscience, it is far more frequently the result of a melancholic idiosyncrasy, or a debilitated state of the constitution at the time of the attack, in consequence of which the sensorial fluid is secreted perhaps even less freely, instead of more so, than in a condition of health: so that the patient sinks by degrees into a state of insensibility; unless he should be roused with false courage and find means to put an end to his existence before this period arrives.

State of the mind rarely explanatory of the exciting cause.

Pathology.

δ E. Mania demens. Chaotic madness.

In DEMENTIA or CHAOTIC MADNESS this state of sensorial exhaustion and consequent insensibility is still more obvious, though there is, perhaps, less constitutional tendency to the depressing passions. The judgement is here more diseased and weakened than in any other form, and, none of the kindred faculties assuming a paramount power, there is a general anarchy and confusion in the ideas that flit over the sensory without connexion or association of any kind. And hence Pinel has admirably characterized it, as consisting in a "rapid succession or uninterrupted alternation of insulated ideas and evanescent and unconnected emotions; continually repeated acts of extravagance; complete forgetfulness of every previous state; diminished sensibility to external impressions; abolition of the faculty of judgement; perpetual activity without

Pathology.

Description from Pinel.

* Anat. of Melancholy. Part. i. Sect 3.

object or design, or any internal sense of its taking place" *.

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These maniacs are often ungovernable except by means of coercion, but they are more easily restrained than those who are in a state of phrensy. They are intractable, and neither listen to entreaty or to menaces. Fear of corporal punishment, however makes them obey. They willingly avoid the light, burying themselves under the bed-clothes, or under the straw of their cells. They are totally regardless of decency and cleanliness, and from some strange motive are often found smearing themselves over with their excrement. For the most part they have little appetite, and refuse the food offered them; yet a sense of hunger seems sometimes to return with great keenness when they will greedily devour their feces. Of the nature of the ideas that take place in the sensory, and are expressed by an unintelligible muttering, we know nothing further than that, from the screams and howlings with which their jargon is accompanied, there can be no doubt that they are often excited by painful sensations of body or mind.

Additional features.

General prognostics. In reference to the fourth variety.

It is happy for those who suffer under this as well as under the preceding form, that they rarely sustain a long conflict; the exhaustion of sensorial power by repeated paroxysms soon leading to a total torpitude, and consequently a death of the sensorial organ; though there are instances in which a paroxysm of more violence than usual has produced a favourable change, and suddenly restored the patient to his senses.

In reference to the third.

In gloomy madness, in which there is often a chronic affection of some of the abdominal organs co-operating with a diseased condition of the brain, we find least to justify hope; the patients generally become weakened by fresh paroxysms, and often sink into a state of idiotism.

In reference to the first.

The first variety, on the contrary, if the constitution have not been seriously broken down by intemperance, or the patient be not suddenly carried off by the violence of

* De l'Aliénation Mentale. Chap. III. iii. §. 176.

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the attack on its commencement, will often work its own cure by its own ardour; and will gradually soften into a soberer state from mere mental fatigue. While in the milder and more pleasureable modification of the second variety, in which the secretion of sensorial power is upon the whole perhaps less than in a condition of sanity (since, though the stimulus of the disease may tend to increase it a little, the total privation which the patient enjoys of all the vexations, and anxieties, and wearing vicissitudes of real life, reduce it to a moderated and even tenour it could not otherwise possess), nothing is more common than for maniacs to continue to a very advanced age. I am at this moment interested in the case of a clergyman who has reached his ninety-sixth year, and has been in a state of quiet insanity for more than half a century.

Disease most easily cured when produced by accidental causes. Hence the frequent and easy cure of puerperal insanity. Most difficult of removal when accompanied with an hereditary taint.

For the most part those are most easily as well as most rapidly cured, whose insanity, of whatever kind it be, has been produced by accidental causes, as intoxication, sudden transition from cold to heat, retention of habitual discharges, or a revulsion by a transfer of morbid action from other organs. And hence the comparative facility with which a cure is effected in insanity after child-birth. Whilst, on the contrary, those are least likely to obtain a permanent recovery who possess an hereditary taint; the disease may indeed leave them for a time, but, the predisposition remaining, they commonly fall victims to fresh attacks after intervals of a year or two, or even of a few months.

Term of the disease variable from six months to forty years, or longer. First attack easiest carried off, especially if under three months' standing.

"Mania and melancholy", says Dr. Greding, writing while he was physician to the workhouse at Waldheim, "have continued half a year with some, and remained forty years and upward with others, among whom one patient only in this workhouse attained the age of eighty-five"*.

The chance of recovery is considerably greater upon the first than upon any subsequent attack, and especially if the disease have not exceeded three months' duration

* Vermischte Schriften, ut supra, &c.

when the patient is first put under medical treatment. If it have, at this time, lasted a twelvemonth, the prospect of success is diminished by half: if two years, not above a fourth part as many recover; and if more than two years the expectation is small, though, where the second year is not much exceeded, a cure is by no means to be despaired of.

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The treatment of ecphronia has generally been discussed under the two heads of MEDICAL and MORAL. Both have undergone a very great improvement within the last twenty or thirty years; the first by being considerably simplified, the second by being more thoroughly studied and raised to a higher degree of importance.

Curative process of two kinds: medical and moral.

Nothing can be more injudicious than the ordinary routine of MEDICAL TREATMENT, which, till within a few years, was equally employed in almost all the larger lunatic establishments in our own country and on the continent, especially at Bethlem, the Hospice d' Humanité, and the Hotel Dieu; and which consisted in a course of venesections, emetics and purgatives administered in every case indiscriminately, and often, indeed, without even the personal inspection of the consulting physician or other superintending medical officer; and if to these means of cure we add the occasional use of bathing in various forms and various temperatures, we shall very nearly have exhausted the merely medical process that till of late was ordinarily had recourse to.

Medical treatment. Formerly too indiscriminative.

Upon the cruel and disgusting scenes which, from the late parliamentary inquiry, and the report of the Committee which followed, are well known to have occurred not long ago, in the largest and most celebrated receptacle of lunatics in this metropolis, it is now unnecessary to dwell. But from the official communication of M. Esquirol to the French government concerning the residences for lunatics throughout France, it is perfectly clear, that we have not transgressed in a greater degree than our neighbours. Filth, straw, and dirty rags, were all these miserable beings possessed in many depôts to mitigate the coldness of the air and the dampness of their paved,

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crammed, and suffocating cells. And in some instances they had neither straw nor rags, and were perfectly naked, except from a layer of dirt. " J' ai vu," says M. Esquirol, with just indignation, " un malheureux imbécile, tout nu et sans paille, couché sur le pavé. Exprimant mon étonnement d' un pareil abandon, le concierge me répondit que l' administration ne lui passait, pour chaque individu, qu' une botte de paille tous les quinze jours. Je fis remarquer à ce barbare que le chien qui veillait à la porte des aliénés etoit logé plus sainement, et qu' il avoit de la paille fraîche et en abondance. Cette remarque me valut un sourire de pitié. Et j' etois dans une des grandes villes de France"*. It is satisfactory, however, to know, that a more judicious and discriminative practice has in all these asylums been introduced since the above period, and that it has been followed by an abundant success.

A reducent plan when and how far advisable.

Admitting the proximate cause of insanity to be in most cases an increased action of the vessels secreting the nervous fluid, venesection and cathartics and a general reducent regimen seem indicated as an ordinary mean of relief; and are unquestionably called for when the pulse is full and strong, and the temperament is sanguineous: and the success which has so frequently accompanied this practice stamps it with the highest sanction it can receive.

Venesection where called for: has been repeated extravagantly: by Plater seventy times.

But there is great reason to believe that even where the demand for blood-letting is unequivocal, it has been carried to a mischievous extent, and ruined its own benefit. Thus Plater made a point of repeating it once a week, and tells us that he has sometimes had recourse to it for seventy weeks running †.

Caution necessary even from the first:

Much caution, however, is necessary even in the first trial; for as a sound intellect depends apparently upon a certain degree of excitement in the sensorial vessels, and a certain quantity of the fluid secreted, derangment may take place also, as we have already observed, from dimi-

* Des Etablissemens des Aliénés en France, et des moyens d' ameliorer le sort de ces Infortunés. Paris, 1819.

† Observ. Lib. I. p. 86.

nished instead of from increased action, and diminished instead of increased secretion. And such we have reason to believe is the cause of delirium whenever it occurs in profuse hemorrhage, and in typhous fevers; and it is obvious that in all such instances a reducent plan must necessarily tend to augment instead of to carry off the disease. And hence the patient's general habit and temperament, the nature of the exciting cause, the probability of visceral congestion, the violence or mildness of the maniacal symptoms, the progress they have made, and the length of time he has laboured under them, are all to be taken into consideration before we can determine upon the expediency of bleeding even at first. And if, when we have decided upon its propriety, no benefit be produced from a second or a third repetition, we have no encouragement to proceed further, and should withhold the lancet altogether.

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as increased instead of diminished action may be necessary.

General points of consideration antecedently to a decision.

Occasions for repeated bleeding not common.

To a series of purgative medicines there is less objection, provided they are not rendered too violent. The abdominal viscera, it has already appeared, form in many instances an important link in the morbid chain of action, and are sometimes the primary cause of the disease: and it is hence of great moment that they should be effectually cleared of viscid or acrimonious matter that may irritate or clog them up. But, beyond this, by keeping up such an increased action in the abdominal region as the organs may bear without debility, we may diminish or change the morbid action in the head by remote sympathy, or entirely withdraw it by a revulsion. A spontaneous diarrhœa has been known in various cases to carry off the disease as by a charm: and the use of this class of medicines is the more necessary, as the bowels of maniacal patients are apt to be extremely costive. If the black hellebore of the ancients, which appears to have been a different plant from that of the modern dispensatories, were ever entitled to half the antimaniacal virtues ascribed to it, it was most probably upon the obvious ground of its being a purgative attenuant and deobstruent.

Purgatives less objectionable and more useful.

Occasional benefit of a spontaneous diarrhœa.

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Dr. Dubuisson has lately revived the use of the modern black hellebore in various species of mental alienation, as chronic mania, melancholy, and hypochondrism: in all which he speaks of its effects, after an extensive trial, as highly successful. He has given it also in every form, as that of powder, decoction, watry extract and tincture; but prefers the extract as least irritating *. His opinion, however, is not supported by the result of general practice, and appears to be by far too sweeping and indiscriminate. Spleissius, nevertheless, affirms that in his hands, when given freely, it proved sedative and produced sleep †.

Little dependence upon any other class of medicines. Emetics. Blisters.

Upon no other description of medicines can we place any rational dependence. Emetics, narcotics, and other sedatives, and antispasmodics, have been tried for ages in every form and in every proportion; sometimes alone, and sometimes in conjunction with blisters and the warm or cold bath. There are instances in which they have all appeared to produce some benefit, but the far greater number in which they have failed prevents us from placing any reliance upon them.

Narcotics. Opium doubtful:

Of the narcotics, the chief that have been had recourse to are opium, aconite, bella donna, and the stramonium. Far more mischief than good seems to have followed from the use of all of them, with the exception of the first, which would probably be found a remedy of high value if we could duly discriminate the proper states or modifications of the disease for its use. Dr. Cullen's experience of it in mania he admits to be small, but he has correctly estimated its general effects in telling us, that in some cases he found it useful in moderating the violence of the disease, but that in others he found it manifestly hurtful.

but requires a more discriminative trial.

A monographist upon this malady could not, perhaps, be engaged more usefully than in turning his attention to the peculiarities which produce this difference. On the con-

* Des Vesanies ou Maladies Mentales. Paris, 1816.

† Annotat in Zapat. Mirabil. p. 196.

tinent it has also been given sometimes alone, but more usually in conjunction with nitre or camphor or both; but in all these forms also with variable success *.

Hypericum formerly in high esteem, but without grounds.

Upon what ground St. John's wort was ever advanced to the rank of a powerful sedative I know not; but, in this class, it at one time took the lead and held it for ages. Its antispasmodic powers were regarded of so high a character as equally to put to flight hysterics, hypochondrism, and madness of every kind, and especially that which was formerly described under the name of dæmonomania †, whence, indeed, its technical name of *hypericum* or fuga dæmonum, under which it was also celebrated. It occupied a place in a late edition of the pharmacopœia of the London College, and was at one time noticed as an antispasmodic even by Dr. Cullen, who rejected it however, most deservedly, in his maturer courses of lectures. Its only sensible qualities are those of a slight resinous bitter not worth the trouble of extracting.

Camphor.

Camphor is a sedative far better entitled to attention, and appears to have been tried with more extensive success than any other medicine of the same tribe. It has been given alone and in union with other sedatives, chiefly with opium, nitre, and the mineral acids, none of which however seem to have improved its powers. Berger, Fischer, and Herz, speak favourably of its effects abroad; and in our own country it has had equal commendations from physicians of distinguished talents. Dr. Mead thought highly of it; Sir Clifton Wintringham tells us that he found it, given to the amount of half a drachm in the evening, diminish the phrensy, procure sleep, and produce perspiration. Unfortunately, however, here, as in the case of opium, we have so many proofs of its utter inefficacy, as to render us at present incapable of placing any dependence upon it in any quantity or with any auxiliary. Dr. Cullen had a patient who began with five grains for the night's dose, and advanced it gradually

Its effects different in different hands or different cases.

* Friborg. Coll. Soc. Med. Hafn. II. p. 176.

† Abrah. Mayer, Archiv. der Practischen Arsneykunde.

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to thirty, without any benefit, though without any increase of the pulse. At this time it was carried by accident to forty grains, which produced syncope, and nearly proved fatal. The patient, however, recovered from the accidental symptoms, but unhappily no impression was made on the constitutional disease *.

Medical treatment.

Bath, warm and cold.

The warm and cold bath have also had their votaries, but no certain benefit appears to have been derived from either. The last may be useful as a tonic in a state of convalescence, but has rarely produced real benefit during the progress of the disease. Weber, however, thought it useful, and published several cases to this effect †.

Pounded ice applied to the head, formerly by Wendt and others. Daniel applied ice to the head and warm bath to the body at the same time.

From an idea that the disease consists in an undue determination to the head, or an undue excitement of the vessels secreting the nervous fluid, Wendt‡ surrounded the head with cataplasms of pounded ice in the form of a night-cap; and Daniel, with a still more ingenious spirit of adventure, applied cataplasms of the same kind to the same organ while the body, with a view of encouraging a revulsion more effectually, was plunged into a warm-bath. The process will be found described in his Beyträge zur medicinischen Gelehrsamkeit, published in quarto at Halle in 1749. And I mention the fact as an act of justice to the author, since the same process has of late years been revived in France and in our own country as a new discovery. Daniel thought it highly beneficial; and by its recent revivers it was at one time held up as a specific: but whatever success may in a few rare instances have attended it, the practice has not been able to work itself into public favour: and a sober attention to its effects does not seem to justify its further continuance. M. Pinel was at one time favourable to an employment of jets of cold water directed upon the head while the body was immersed in tepid water; but his successor M. Esquirol is decidedly of

Process lately had recourse to in our own country as a new discovery.

Has been supposed a specific; but not able to support its pretensions.

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* Mat. Med. Vol. II. p. 294.

† Observ. Med. Fascic. I. p. 26. See also Act. Med. Berol. Dec. I. Vol. VII. p. 61.

‡ Nachricht, Von dem Klinischen Institut. zu Erlangen. 1783. 8vo.

opinion that it is injurious; and in many cases has induced disorganization of the cerebrum, and rendered the madness incurable.

Moral treatment.

After all we have chiefly to depend on MORAL TREATMENT. Firmness on the part of the attendant, with conciliatory manners, has done wonders; but a sense of authority must be maintained, though occasional severity should be necessary for this purpose: yet it will rarely be needful to exceed the coercion of the strait waistcoat. It is needless to add that the diet should be of the simplest kind, that every thing which can tend to produce excitement should be prohibited, and that in public institutions, the patients should be divided into proper classes. Amusements of every kind that may engage the attention and encourage exercise in the open air, without rousing the passions or producing fatigue, should be promoted by every contrivance that can be thought of. And if the turn or previous occupation of the patient point to any particular pursuit, and especially to handicraft trades and those that employ the mind without exhausting it, as that of sawing, gardening, book-binding, or watch-making, he should be enabled to pursue it according to his own desire. The desire itself is a favourable symptom, and has often led to the most beneficial results.

Chiefly to be depended upon.

Firmness of authority with conciliatory manners.

In public institutions a proper classification.

Occupations.

Judicious conversation and cheering advice are also of great importance; and regular daily attendance on religious services in the bosom of a private family, or with a few patients of a like standard in a public institution, may be allowed, where the disease has assumed a convalescent shape, and the service is performed soberly and dispassionately*. This will at first, perhaps, be only of use as promoting a habit of moral order and quietism; but every good man will indulge the hope that it may afterwards introduce into the mind the higher blessing of spiritual peace and consolation. Yet the attempt must not be begun too soon, and in no case till the patient has acquired not only a spirit of subordination but of tranquillity. Before this period nothing can be

Judicious and cheering conversation and advice in convalescence.

Attendance on religious services, how far advisable.

Must not be begun too soon.

* Report of the Glasgow Asylum for Lunatics, 1820.

GEN. I. SPEC. II. Ecphronia Mania. Madness.

so absurd as to attempt devotional instruction of any kind; for the subject of religion can only be addressed to the reason or to the passions: the former of which does not exist in a state to be influenced, and the latter of which, if they could be influenced at all, would only add to the excitement, and increase the disease. The clear duty of the priest and of the physician is in this case one and the same: it is to bring the mind home to the world around it: to draw it down and fix it upon things of time and sense, instead of rousing it to things invisible and eternal: to enable it to behold God in the materialities of his works, instead of urging it to a contemplation of him in the spiritualities of his word. To instigate a madman to an abstract and elevated communion with his Creator, who is incapable of holding an intercourse upon ordinary topics with his fellow creature, is to cure a frozen limb by pouring boiling water upon it, or to teach the optics of Newton in a nursery.

Moral treatment. Before convalescence, no benefit whatever to be derived from such means. Explained.

Advantage often to be derived from withdrawing the patient's mind from all former scenes and connexions.

In many cases the cure mainly depends upon withdrawing the patient's mind as much as possible from every former scene and every former companion, in setting before him a new world, and giving an entire change to the current of his recollections and ideas. There are particular cases, however, and perhaps particular periods of the disease, if we could accurately hit upon them, in which the sudden admission of a well-known friend or relation, and a sudden recal of the mind to its former images and habits, tend to produce a most salutary excitement, and disperse the maniacal cloud like a dream. Dr. Gooch has given an interesting illustration of this remark in the case of a lady, twenty-eight years of age, of good constitution but susceptible mind, who fell into a state of melancholy, in the ordinary sense of the term, a few months after a second child-birth, and at length became furious. "She was now", says he, "put under the care of an experienced attendant separated entirely from her husband, children, and friends; placed in a neat cottage surrounded by agreeable country (it was the finest season of the year), and visited regularly by her physician. For several weeks she manifested no improvement; sometimes she was occu-

Yet in a few instances, and at particular seasons, the contrary has been found serviceable. Interesting case in illustration.

pied with one notion, sometimes with another; but they were always of the most gloomy description. At length it became her firm belief that she was to be executed for her crimes in the most public and disgraceful way; every noise she heard was that of the workmen erecting the scaffold; every carriage, the officers of justice assembling at the execution. But what affected her most deeply was that her infamy had occasioned the disgrace and death of her children and husband, and that his spirit haunted her. As soon as the evening closed, she would station herself at a window at the back of the cottage, and fix her eyes on a white post that could be seen through the dusk; this was the ghost of her husband; day and night he was whistling in her ears. Several weeks passed in this way; the daily reports varied, but announced nothing happy; at length her husband became impatient and begged to have an interview with her, thinking that the best way to convince her he was not dead was to show himself. This was objected to; he was told the general fact that patients are more likely to recover when completely separated from their friends; and that if she saw him she would say it was not himself but his ghost. But the husband was obstinate, and an interview was consented to. When he arrived at the cottage he was told that she had had a tolerable night, was rather more tranquil, but that there was no abatement of her gloomy notions. "As soon as I entered the drawing-room, where she usually spent the day (I copy his own statement which I have now before me and which he wrote down at the time of the occurrence), she ran into a corner, hid her face in a handkerchief, then turned round, looked me in the face, one moment appearing delighted at the thought that I was alive, but immediately afterwards assuming a hideous expression of countenance, and screaming out that I was dead and come to haunt her. This was exactly what Dr. —— had anticipated, and for some minutes I thought all was lost. Finding that persuasions and argument only irritated and confirmed her in her belief, I desisted, and tried to draw off her attention to other subjects. It was some

Gen. I. Spec. II. Ephronia Mania. Madness. Moral treatment.

Gen. I. Spec. II. Ecphronia Mania. Madness.

Moral treatment.

time since she had either seen me or her children; I put her arm under mine, took her into the garden, and began to relate what had occurred to me and them since we parted; this excited her attention, she soon became interested, and I entered with the utmost minuteness and circumstantiality into the affairs of the nursery, her home, and her friends. I now felt that I was gaining ground, and when I thought I had complete possession of her mind, I ventured to ask her in a joking manner, whether I was not very communicative for a ghost; she laughed; I immediately drew her from the subject, and again engaged her attention with her children and friends. The plan succeeded beyond my hope; I dined, spent the evening with her, and left her at night perfectly herself again." He went the next morning in a state of intense anxiety to know whether his success had been permanent; but her appearance at the window with a cheerful countenance soon relieved his apprehensions. While he was there Dr. —— came in; he went up stairs without knowing the effect of the interview, and came down, saying, "it looks like magic!" With a view of confirming her recovery, she was ordered to the sea-side to bathe. As soon as the day of her departure was fixed, she began to droop again, the evening before it she was very low, and on the morning of her setting off was as bad as ever. This state continued for several weeks in spite of sea-air and bathing, and ceased as suddenly as it had done before, apparently in consequence of interviews with friends, calculated to remove the apprehensions by which her mind was haunted. She has since then continued perfectly well, and has had another child without the slightest threatening of her former malady" *.

An experiment thus bold and fortunate, not to be rashly copied.

This was a bold venture, and the physician must be of a temper more than ordinarily sanguine who would predict a like success upon every similar attempt. Yet we have already had occasion to observe, that puerperal insanity is more easily recovered from than most other forms of the disease.

* Med. Trans. Vol. vi.

GENUS II.

EMPATHEMA.

Ungovernable Passion.

THE JUDGEMENT PERVERTED OR OVERPOWERED BY THE FORCE OF SOME PREDOMINANT PASSION; THE FEATURES OF THE COUNTENANCE CHANGED FROM THEIR COMMON CHARACTER.

GEN. II. Derivation of the generic term.

THE term EMPATHEMA is derived from the Greek πάθημα, "passio", "affectio", whence ἐμπαθὴς, "cui insunt affectus seu perturbationes; affectû percitus vel commotus."

All the faculties of the mind as liable to disease as those of the body.

We have already had occasion to observe that the various faculties of the mind are just as liable to be separately diseased as those of the body: for as the faculty of digestion may be impaired while that of respiration or secretion remains in perfect health, so may the perception or the judgement be injured while the memory or the imagination continues in its former activity. It is the same with the pathetic faculties. These I have stated are to the mental part of the human frame what feelings properly so called are to the corporeal; and hence both may be excited pleasurably or painfully; they may be in morbid excess or in morbid diminution: and their influence may equally vary according to the peculiarity of the passion or the sense affected. Each will therefore furnish a distinct division of diseases: the first constitutes the genus before us; the second will be found in the ensuing order.

The passions of the mind equally liable; and are to the mind what feelings are to the body. May be in morbid excess or diminution; may be pleasurably excited or painfully. Morbid passions constitute the present genus.

SPECIES I.

EMPATHEMA ENTONICUM.

Empassioned Excitement.

THE PREDOMINANT PASSION ACCOMPANIED WITH INCREASED EXCITEMENT, ARDOUR, AND ACTIVITY; EYE QUICK AND DARING; COUNTENANCE FLUSHED AND TUMID.

GEN. II. SPEC. I.

THE varieties are innumerable: the chief are as follow,

α	Lætitiæ.	Ungovernable Joy.
β	Philautiæ.	Self-love. Self-conceit.
γ	Superbiæ.	Pride.
δ	Gloriæ famis.	Ambition.
ε	Iracundiæ.	Anger.
ζ	Zelotypiæ.	Jealousy.

The passions are direct stimulants to the mind:

All these, and, indeed, all other passions whatever, are as much direct and indirect stimulants to the mind as provocative foods or drinks are to the body. Employed occasionally and in moderation both may be of use to us,

and hence may be useful or mischievous:

and are given to us by nature for this purpose: but when urged to excess they throw the system off its healthy balance, rouse it by excitement or depress it by exhaustion, and weaken the sensorial vessels by the wear and tear they produce.

Hence possess some symptoms in common:

As those we are now contemplating are attended with increased action, they have some few symptoms in common, how widely soever they may differ in others; of which the chief are an augmented temperature and an accelerated pulse. If carried to such a degree that the judgement loses its power, or in other words the man has no longer any command over himself, they betray them-

selves by their effect on particular features and particular organs, according as the emotion is of a painful or a pleasurable character, or as the pain or the pleasure predominates in those cases which partake of both.

Gen. II. Spec. I. Empathema entonicum. Empassioned excitement.

There are some organs, however, that seem to be equally affected under a vehement excitement of whatever may be the prevailing passion, as the brain, the heart, and the lungs; for head-ache and apoplexy, palpitation and anhelation are alike common to sudden fits of extreme joy, terror, and rage. The thoracic effects are indeed the most striking; and hence it is that the præcordia have been more generally supposed in all ages and countries to be the seat of mental emotion than the encephalon; and the state of the heart, as light and jumping for joy, oppressed and breaking with grief, or black and bilious with hatred, has been more commonly appealed to than that of the animal spirits; though the latter is the cause, and the former the mere effect.

Sometimes discover themselves by separate signs or affecting separate organs.

Some organs equally affected by a vehement excitement of all passions.

Hence much of our popular phraseology derived:

It may be thought, perhaps, that the vulgar character of the heart as indicative of hatred or revenge, is merely figurative and has no foundation in nature. But this is not the case; for anger when long indulged is well known to affect the functions of the liver, and has often laid a foundation for jaundice, and consequently for a deeper colour as well as other properties of the blood that circulates through the heart: a fact so well known, that the seat of anger has, in the poetical language of most countries, been transferred to this organ, and bilious or choleric and irascible are convertible terms in the popular language of our own day.

Whence the heart said to be the seat of hatred.

We have endeavoured to account for the difference of effect produced by the sensorial fluid in the different organs of local sensation, by supposing some degree of change to take place in the nature of this fluid by the action of the respective sentient nerves at their origin or extremity. It is possible that other changes may take place in the sensorium from the influence of peculiar mental impressions, and that certain classes or ramifications of nerves may be more affected by particular im-

How different organs are excited by different passions.

Whether pleasurable

GEN II. SPEC. I. Empathema entonicum. Empassioned excitement.

pressions than others. And we may hence account not only for the sympathy of the liver with the sensorium when urged by anger, but for that of other organs under other empassioned excitements; and this not merely whether pleasureable or painful, but according to the peculiarity of the pleasure or the pain which forms the source of incitation. Thus while anger stimulates the liver, fear has a tendency to produce a diarrhœa and incontinence of urine; grief disorders the stomach, and affects the lachrymal glands; sudden fright divests the muscles of locomotion, and produces palsy; while mirth throws them into involuntary action, and compels a man to leap, laugh, and sing.

or painful, and according to the respective kinds of pleasure and pain. Exemplified.

This, however, is to digress; for our present business is to contemplate the mental rather than the corporeal effects of the passions when urged to excess, or intemperately protracted.

α E. entonicum Lætitiæ. Ungoverned joy. Its stimulant effects.

The instances of derangement produced by a sudden FIT OF IMMODERATE FLOW OF JOY are numerous, and not difficult to account for. As this empassioned emotion, when indulged with a rampant domination over the judgement, is a direct stimulus of a very powerful kind, acting not only on the nerves but on every part of the body, it cannot take place without producing great sensorial exhaustion, and consequently cannot be persevered in without remissions of languor and lassitude, like the effects of intoxication from strong wine or spirits. The misfortune is, that when the elevating faculties of the mind, and especially the imagination, are once let loose by the operation of this passion, and both run wild together, the mental excitement will sometimes continue after the strength of the body is completely prostrated. And when this strength is sufficiently recruited for the external senses to convey once more to the perception true and lively impressions of the objects that surround them, the perception which has been also morbidly affected by the violence of impassioned paroxysms will not receive or convey them in a true state, and a permanent derangement is the consequence.

Succeeded by great corporeal exhaustion, sometimes while the mental excitement prevails. Whence a permanent inaccordance with impressions from external objects.

Gen. II. Spec. I. a E. entonscum Lætitiæ. Ungoverned joy. Exemplified.

Cardan* gives the case of an artisan of Milan, who having had the good luck to find an instrument that formerly belonged to Archimedes, ran mad with the fit of transport into which he was hereby thrown: and Plutarch, in his life of Artaxerxes, has a like story of a soldier who, having had the high honour of wounding Cyrus in battle, became so overjoyed that he lost his wits from the moment. Boerhaave† and Van Swieten‡ relate cases of epilepsy that have followed from the same cause.

Exhaustion sometimes so sudden and total as to produce death.

Occasionally the exhaustion of sensorial power hereby produced is so sudden and total, that the whole nervous system seems instantaneously to become discharged of its contents, like a Leyden phial loaded with electricity when touched with a brass rod, and death takes place at the moment. There are various instances on record in which a like fate has followed upon the injudicious production of a pardon to a culprit just on the point of his being turned off at the gallows. Valerius Maximus relates two anecdotes of matrons who, in like manner, died of joy on seeing their sons return safe from the battle at the lake Thrasis: the one died while embracing her son, the other had been misinformed, and was at that moment lamenting his death. The power of suprise was added therefore in this case to that of joy, and she fell even before her arms could clasp him§. Marcellus Donatus, Pechlin, and other collectors of medical curiosities are full of incidents of this kind: and a case not very unlike occurred a few years since to the present author, in the person of an intimate friend and most exemplary clergyman. This gentleman, who had consented to be nominated one of the executors in the will of an elderly person of considerable property with whom he was acquainted, received a few years afterwards, and at a time when his own income was but limited, the unexpected

Exemplified.

Further illustration.

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* De Sapientiâ, lib. ii.
† De Morb. Nerv. lib. ix. cap. 12.
‡ Comment. Tom. III. p. 144.
§ Lib. IX. cap. 12.

Gen. II. Spec. I. α E. entonicum Lætitiæ. Ungoverned joy.

news that the testator was dead, and had left him sole executor, together with the whole of his property, amounting to three thousand pounds a year in landed estates. He arrived in London in great agitation, and on entering his own door dropt down in a fit of apoplexy, from which he never entirely recovered; for though he regained his mental, and most of his corporeal faculties, his mind was shaken and rendered timid, and an hemiplegia had so weakened his right side that he was incapable of walking farther than a few steps.

This emotion highly useful if it could be meted out and employed as a medicine:

Has been productive of wonderful cures.

Exemplified.

Could this passion be employed as a medicine, and administered with a due regard to time and measure, from its powerful influence on the whole system, there can be no doubt that it might be made productive of the most beneficial effects. And there is hence no reason for hesitation in admitting many of the wonderful cures which are reported to have been occasionally operated by its sudden incursion. Corineus gives the case of a tertian ague thus removed; Lory that of a stricture of the pylorus with incessant vomiting *; and Trellian, what we should less have expected, a radical cure of melancholy †.

β E. entonicum Philautiæ. Ungovernable self-conceit.

Description.

In the SECOND VARIETY we have noticed the predominance of SELF-CONCEIT. The ordinary feeling here is still of a pleasureable kind, but never amounts to the paroxysms of the preceding: its effects therefore on the soundness of the mind are more gradual, but in many instances quite as marked. It is a vain and preposterous estimation of one's personal powers or endowments, accompanied with so immoderate a love of one's own self on this very account, as to make the possessor blind to every instance of superiority in another person, and hence to save him in a considerable degree from the pain he would otherwise endure; for the self-conceited man is not easily mortified or humiliated, and hence not easily cured of the malady. "A wise man," says Mr. Mason in his Treatise on Self-

* De Melancholiâ, Tom. I. p. 37. † Lib. XLI. p. 17.

knowledge, "has his foible as well as a fool; but the difference between them is, that the foibles of the one are known to himself and concealed from the world; the foibles of the other are known to the world and concealed from himself. The wise man sees those frailties in himself which others cannot; but the fool is blind to those blemishes in his character which are conspicuous to every one else"*. It was under the influence of this disease that Menecrates, as we learn from Ælian, became so mad as seriously to believe himself the son of Jupiter, and to request of Philip of Macedon that he might be treated as a god. But it is not always that the man thus deranged falls into such good hands as those of the Macedonian monarch; for Philip humorously determining to make the madman's disease work its own cure, gave orders immediately that his request should be complied with, and invited him to a grand entertainment, at which was a separate table for the new divinity, served with the most costly perfumes and incense, but with nothing else. Menecrates was at first highly delighted, and received the worship that was paid to him with the greatest complacency, but growing hungry by degrees over the empty viands that were offered him, while every other guest was indulged with substantial dainties, he at length keenly felt himself to be a man, and stole away from the court in his right senses†.

Gen. II. Spec. I. β E. entonicum Philautiæ. Ungovernable self-conceit.

The passion of PRIDE has a close affinity to that of self-conceit: but is less confined to self-endowments, and is a relative as the former is a personal vanity. The proud man may indeed have the same preposterous estimation for some supposed gift of person, but the grasp of the passion does not terminate here; for he carries the same estimation to every thing that in the remotest degree appertains to him, and is hence as vain of his birth, or family connexions, his wealth, his estates, his country,

γ E. entonicum Superbiæ. Ungovernable pride. Description.

* Part. I. Ch. VII. † Lib. XII. cap. 51.

GEN. II. SPEC. I. γ E. entonicum Superbiæ. Ungovernable pride.

his office, his honour, or his religion: and he is hence open to more numerous mortifications, and is in fact more frequently mortified than the mere egotist. Examples of a deranged mind from ungovernable pride are to be found in every rank of life; but as those in the loftiest have the cup of intoxication most frequently offered to them, and drink deepest of its contents, it is here, among kings, and courtiers, and prime ministers, and commanders, that we are to look for the most striking instances of this malady. Many a crown won by good fortune, and which might have been preserved by moderation, has been lost by the delirium of pride and vain-glory; of which the history of Demetrius of Macedonia furnishes us with one of the most memorable examples: who, in his disgraceful fall, was obliged to abandon, among the other idols of his heart, the unfinished robe which was to have hung over his shoulders, containing a magnificent embroidery of the sun, the moon, and all the stars of heaven, designed to have represented him as the sovereign lord of the whole.

Why subject to more numerous mortifications than self-conceit?

Where principally to be found.

Exemplified.

Pride of humility what?

There is, however, another kind of madmen, to adopt the words of Butler *, opposite to these, "that are insensibly mad and know nothing of it; such as affect to contemn all praise and glory, and think themselves most free when they are most mad: a company of cynics, such as monks, hermits, and anchorites, that contemn the world, contemn themselves, contemn all titles, honours, offices, and yet in that contempt are more proud than any man living. They are proud in humility, proud in that they are not proud.—They go in sheep's russet, many great men that might maintain themselves in cloth of gold, and seem to be dejected; humble by the outward carriage, when as inwardly they are swollen full of pride, arrogancy, and self-conceit. And therefore Seneca adviseth his friend Lucilius in his attire and gesture, his outward actions especially, to avoid all such things as are

Exemplified.

Prudential advice of Seneca.

* Anat. of Melanch. Part. i. Sect. ii. Vol. i. p. 169.

most notable in themselves; as a ragged attire, hirsute head, horrid beard, contempt of money, coarse lodging, and whatever leads to fame that opposite way"*.

Gen. II. Spec. I. γ E. entonicum Superbiæ. Ungovernable pride.

When the passion of pride is united with that of ardent desire after something beyond us and above us, it constitutes the next feeling of AMBITION: and hence this also is an inflating emotion, a tympany of the mind, and may be called *prospective* vanity, as pride is *relative* vanity, and self-conceit *personal*. It is the more dangerous to the understanding in consequence of the double force with which it overpowers the judgement: and hence the slave of inordinate ambition is far more restless, and in a far higher degree of excitement, than the slave of either of the other two kinds of vanity; and as being dependent upon a greater number of contingencies, he is most of all open to reverses and downfalls.

δ E. entonicum Gloriæ famis. Ungovernable ambition.

Description.

Why more dangerous to the understanding than either of the preceding.

Examples are not necessary, and would be a waste of time. Whenever the stimulant ideas or thoughts that are connected with any one of this train of passions pass over the mind, the blood, as is justly observed by Sir A. Crichton, rushes with impetuosity to the head, the sentient principle is secreted in preternatural quantity, and the excitement is at last so often renewed, and increases to such a degree, as to occasion an impetuous and permanent delirium. But when the expectations and high desires, which pride or vanity naturally suggest, are blasted; when these passions are assailed by poverty, neglect, contempt, and hatred, and are unequal to the contest, they now and then terminate in despondency or settled melancholy †.

Cases so common as to render examples unnecessary.

Still more dangerous in disappointment.

and productive of despondency.

But if such be a frequent effect of the stirring passions of a pleasureable kind; it is not difficult to conceive that those accompanied with pain, as the passion of ANGER, and all its compounds, suspicion, revenge, and especially jealousy, must make a much wider inroad upon the domain of a well-ordered mind, and introduce confusion and derange-

ε E. entonicum Iracundiæ. Ungovernable anger.

* Epist. v. † Of Mental Derangement, Book III. Ch. II.

GEN. I. SPEC. I. ε E. entonicum Iracundiæ. Ungovernable anger, and its compounds.

ment. Nor is the effect confined to the head; for a stimulus thus violent affects the entire system, and, as we have already observed, has a peculiar sympathetic influence on the liver; producing in many instances a very diseased secretion of bile, and altering it in a very short period not only in its quantity but in its quality. At the same time, every vessel is exhausted of its irritability, and the whole strength is so prostrated, as occasionally to lead on to obstinate faintings, convulsions, and death. The expressions and gestures are always violent and offensive, and are similar to those of maniacal rage; the eyes are red and inflamed, the countenance is flushed, swollen, and distorted, and the person is ungovernable. Such was the case in 1392 with Charles VI. of France, who, being violently incensed against the Duke of Bretagne, and burning with a spirit of malice and revenge, could neither eat, drink, nor sleep for many days together, and at length became furiously mad as he was riding on horseback, drawing his sword, and striking promiscuously every one who approached him. The disease fixed upon his intellect and accompanied him to his death.

More mischievous in their result than the pleasureable emotions.

Violent and extensive corporeal effects.

Exemplified.

ζ E. entonicum Zelotypiæ. Ungovernable jealousy.

IN JEALOUSY, as in ambition, there is a combination of irritating passions, and the combination is still more complicated; for it is a compound of suspicion, hatred, eager desire of revenge, occasionally intermixed with love. To hot climates it appears to be endemic, and there is not perhaps an eastern dynasty that does not offer numerous examples of its sanguinary phrensy, and diabolical career.

Description.

Remedial means.

It is not often, however, that any of the varieties of this species terminate in permanent insanity, although the case of Charles VI. of France forms an exception to the general rule. As moral treatment appears to be of more benefit in the preceding genus than medical, it is almost the only treatment that can be recommended in ungovernable passion; though the violence of the excitement should unquestionably be reduced by venesection and purgatives. After this, time and perfect quiet must be chiefly depended upon: yet judicious conversation, and more especially a judicious choice of subjects may accomplish much. A deaf ear is generally turned to the

Principally moral discipline:

precepts of the moralist, but if attention can be obtained for them, Epictetus and Mason's Self-knowledge, Pascal's Thoughts and Lord Bacon's Essays, will furnish valuable remedies; and so also, and of a much more powerful operation, will the still better penned ethics of a book which in every Christian country should be uppermost in the mind without any suggestion. Moral castigation, however, if not too sudden or severe, is that which generally works most effectually; and few madmen of this kind have been able to meet a serious reverse of fortune or condition in life without being the better for it, if not destroyed by its first shock. Self-conceit, which is a mere product of self-ignorance, is best removed by an acquaintance with the world, and especially with men of real talents and genius, in which sphere the man who labours under it will soonest learn his own emptiness, and the means of remedying this defect. And hence the advantage of a public education over a private one; in which talents are brought into a fair competition with talents, and every one learns to appreciate his powers, not by the standard of his own vanity, but by the stamp of merit that has passed the mint.

Gen. II. Spec. I. Empathema entonicum. Empassioned excitement. Treatment. and especially a reverse of condition in fortune.

SPECIES II.

EMPATHEMA ATONICUM.

Empassioned Depression.

THE PREDOMINANT PASSION ACCOMPANIED WITH DIMINISHED EXCITEMENT, ANXIETY AND LOVE OF SOLITUDE: EYE FIXED AND PENSIVE; COUNTENANCE PALE AND FURROWED.

Gen. II. Spec. II.

THE mental emotions productive of these effects are at least as numerous as those which harass the frame by in-

Gen. II. Spec. II. Empathema Atonicum. Empassioned Depression.

creased excitement. The following may serve as examples:

α Desiderii.	Ungovernable Love.
β Auri famis	——— Avarice.
γ Anxietudinis.	——— Anxiety.
δ Mœroris.	——— Heart-ache.
ε Desperationis.	——— Despondency.

All these emotions excite some corporeal symptoms in common.

As increased sensorial excitement produces various symptoms in common, whatever be the nature of the governing passion at the time there; are also various symptoms common to decreased sensorial excitement under each of these depressing passions: as a greater or less degree of torpor in every irritable part, especially in the circulating and absorbent systems; whence paleness of the countenance, coldness of the extremities, a contraction and shrinking of the skin, and general surface of the body: a retardation and smallness of the pulse, want of appetite, deficiency of muscular force, and a sense of languor which overspreads the whole frame.

α E. atonicum Desiderii. Ungovernable longing or love.

The ardent desire which is distinguished by the name of LONGING, is directed towards objects of various kinds that are absent, and equally relate to places and persons. It is a painful and exhausting emotion, as compounded of hope, love and fear, and peculiarly agitates the præcordia: and hence the striking and beautiful apophthegm of the wise man, "Hope deferred maketh the heart sick." It is felt by children at a distance from home, and who are eager to return to the embraces of their parents; by foreigners who have a strong and inextinguishable love for their country, and are anxious to return to the scenes and the companions of former times: and by the youthful pair who have vowed an eternal attachment, and are sure that they cannot live without each other, but whose union is opposed by bars that are felt to be insurmountable. And hence the present variety includes the three modifications of HOME-SICKNESS, COUNTRY-SICKNESS, and LOVE-SICKNESS. The first is for the most part transitory; the second, the *heimwehr* of the Germans, has some-

Its direction various:

and its operation in all periods of life:

producing home-sickness;

country-sickness;

and love-sickness.

times, and especially among the Swiss, when their manners were simpler, and their domestic virtues and feelings much stronger than they seem to have been of late years, produced not only a permanent melancholy but hectic fever. Yet it is to the third that our attention is chiefly called on the present occasion, from the greater frequency of its occurrence and the severer and more tragic effects to which it has led, where obstacles have arisen in its progress.

GEN. II. SPEC. II. a E. atonicum Desiderii. Ungovernable longing or love. The last most frequent and most severe.

We have, on the present occasion, nothing whatever to do with the gross passion of concupiscence, which is as different from that of pure and genuine love as light from darkness. The man of lust has indeed his love, but it is a love that centres in himself and seeks alone his own gratification; while the passion we are now speaking of puts self completely out of the field, and would voluntarily submit to every pain, and sacrifice even life itself, in promoting the happiness of the beloved object. Yet, constituted as we are by nature for the wisest and best of purposes, a pure corporeal orgasm still enweaves itself with the sentimental desire, though subordinate to it in virtuous minds, and the flame is fed from a double source. "Nuptial love," says Lord Bacon, "maketh mankind; friendly love perfecteth it: but wanton love corrupteth and embaseth it"*.

Present emotion of love totally distinct from gross concupiscence: though interwoven with a pure corporeal orgasm.

What it is that first lights up this flame is of no importance to the present subject. A peculiar cast of form or of features acknowledged by all to be moulded according to the finest laws of symmetry, and productive of a high degree of external grace or beauty; or a figure or a manner that to the eye of the enamoured beholder gives token of a mind adorned with all he can wish for; or an actual knowledge, from long acquaintance, of the existence of such internal cultivation and excellence, may be equally causes of the same common effect. And hence this is of little or no account; for the passion being once excited, the judgement runs a risk of being overpowered

Origin of the emotion of no importance: for the judgement is equally overpowered, whatever the immediate cause of excitement.

The excited feelings give rise to romantic ideas of the imagi-

* Essays, No. x.

Gen. II. Spec. II. α E. atonicum Desiderii. Ungovernable longing or love.

by its warmth and violence; and the moment it is overpowered, the new train of ideas that are let loose upon the mind are of a romantic character; and as soon as any obstacle starts up as a barrier in the vista of hope, instead of being damped or repressed, they grow wilder and more vivid, till at length the sensorial system is worn out by the vehemence of its labour; and though the excitement is really less than at first, because there is less vascular vigour for its support, it is still greater than ever compared with the weakened state of the sentient organ.

nation: by obstacles growing wilder and more visionary: whence the mind led astray and the body exhausted.

Though a febrile state follows, it rarely leads to insanity, while a hope of attaining the desired object remains.

But if in this state of excitement all hope be suddenly cut off, despair often follows, and sometimes suicide or other murder.

Yet love-sickness itself, whatever mischief it may work in the corporeal frame, by sleepless nights, a feverish pulse, and loss of appetite*, and however, from the exalted state of the imagination, and the increased sensibility of the body, it may transpose the reality of life into a kind of visionary existence, and so far produce mental derangement, rarely leads to direct insanity, so long as there is the remotest hope of the attainment of its object. But if hope be suddenly cut off by an inexorable refusal, the intervention of a more fortunate rival, the concealment of the object of adoration, or any other cause whatever, the mind is sometimes incapable of resisting the shock thus produced by the concurrent yet opposite powers of desire and despair; and in a moment in which the judgement is completely overwhelmed, the love-sick maniac calls to his aid the demoniacal passion of revenge, and, almost at hazard, determines upon a plan of murder directed against his rival, his mistress, or himself. The story of Mr. Hackman and Miss Rae will at once, perhaps, occur to the recollection of most of the author's readers in proof of this assertion. He himself had some acquaintance with the former; and is convinced from what he knew of him that nothing but a paroxysm of insanity could have urged him to so horrible an act.

Exemplified.

β E. atonicum Auri famis. Ungovernable avarice.

The operation of the passion of AVARICE when it has

* Schurig. Gyneaolog. p. 94.
Horstius, An Pulsus aliquis amatorius concedendus?
Bilizer, De Naturâ Amoris, Giess. 1611. 4to.

once obtained an ascendancy over the mind is altogether of a different nature from that of the preceding variety, though it often produces a wider and more chronic alienation. It has not a stirring property of any kind belonging to it; but benumbs and chills every energy of the body as well as of the soul, like the stream of Lethe; even the imagination is rendered cold and stagnant; and the only passions with which it forms a confederacy are the miserable train of gloomy fear, suspicion, and anxiety. The body grows thin in the midst of wealth, the limbs totter though surrounded by cordials, and the man voluntarily starves himself in the granary of plenty, not from a want of appetite, but from a dread of giving way to it. The individual who is in such a state of mind must be estranged upon this point, how much soever he may be at home upon others. Yet these are cases that are daily occurring, and have been in all ages: though perhaps one of the most curious is that related by Valerius Maximus of a miser who took advantage of a famine to sell a mouse for two hundred pence, and then famished himself with the money in his pocket*. And hence the madness of the covetous man has been a subject of sarcasm and ridicule by moralists and dramatic writers in every period, of which we have sufficient examples in the writings of Aristophanes, Lucian, and Moliere.

GEN. II. SPEC. II.
β E. atonicum Auri famis. Ungovernable avarice.
The emotion altogether opposed to the preceding.
Description.
Singular example.

There is another mental feeling of a very afflictive, and too often, like the last, of a chronic kind, which is frequently found to usurp a dominion over the judgement, and to imbitter life with false and visionary ideas, and that is a habit of ANXIETY or PREYING CARE; which not only drives the individual who possesses it mad, but runs the risk of doing the same to all who are about him, and are harassed with his complaints and discontents. This is sometimes the effect of a long succession of misfortunes or vexatious troubles; but seems in some persons to depend on a very high degree of nervous sensibility, united with a choleric or melancholic tempera-

γ E. atonicum Anxietatis. Ungovernable anxiety.
Occasional causes.

* Lib. VII. Cap. VI.

GEN. II. SPEC. II. γ E. atonicum Anxietatis. Ungovernable anxiety. Description.

ment. Their age, wealth, or situation in life is of no importance, and though their digestive powers are good, and they are not hypochondriacs, they are always apprehensive and full of alarm, and flee from every appearance of joy as they would from an apparition, or even sooner. In the language of Butler, who knew too well how to describe them, "The old are full of aches in their bones, croups and convulsions; dull of hearing, weak-sighted, hoary, wrinkled, harsh, so much so that they cannot know their own selves in a glass, a burthen to themselves and others. If they be sound they fear diseases; if sick weary of their lives. One complains of want, a second of servitude, another of a secret or incurable disease, of some deformity of body, of some loss, danger, death of friends, shipwreck, persecution, imprisonment, disgrace, repulse, contumely, calumny, abuse, injury, contempt, ingratitude, unkindness, scoffs, scouts, unfortunate marriage, single life, too many children, no children, false servants, unhappy children, barrenness, banishment, oppression, frustrate hopes, ill success;

> Cætera de genere hoc, adeo sunt multa, loquacem,
> Delassare valent Fabium.

"In the mean time," continues the younger Democritus, "thus much I may say of them, that generally they crucify the soul of man, attenuate our bodies, dry them, wither them, rivel them up like old apples, and make them as so many anatomies"*.

δ E. atonicum Mœroris. Ungovernable heartache. Contrasted with querulous anxiety.

Nothing can be more different than this constitutional pining, and the pains produced by HEART-ACHE or the reality of severe grief. The former is talkative and querulous; the latter is dumb and flies from company. The sensorial exhaustion is so considerable that the mind, with its attention upon the full stretch, has scarcely strength enough to collect the train of ideas on which alone it resolves to dwell; and hence all conversation is irksome, the presence of a friend disquieting, and the deepest so-

* Anat. of Melancholy, Part I. Sect. II. Subs. X.

GEN. II. SPEC. II.

litude is anxiously sought for. And not unfrequently the discharge of nervous power is so considerable and sudden as to produce a general torpor of the brain; which, if it do not happily terminate in quiet sleep, is the inlet of apoplexy. Even in the former case the inirritability of the nervous fibres continues to such an excess that the sufferer has no natural evacuation for perhaps several days, feels no hunger, cannot be persuaded to take food, is incapable of sighing and sheds no tears. And hence the appearance of tears and sighing are good omens, and are correctly regarded as such; since they show that the general torpitude is giving way in the organs that most associate with this painful emotion of the mind to a slight return of irritability. As soon as the flow of the sensorial principle is a little increased the præcordia struggle with great anxiety, and the heart is overloaded and feels ready to break or burst, whence the name of HEART-ACHE, so appropriately applied to this variety of suffering. Sometimes, also, hysteric flatulency oppresses the respiration, and convulsions, and, not unfrequently, death itself ensues. Of this last effect Erndtl has given numerous instances*. But if recovery should take place it is usually long before the judgement re-assumes its proper sway in the mind, and the temporary derangement altogether ceases. At times, indeed, this never returns, and the pitiable sufferer only lives through the shock to endure the severer evil of confirmed insanity: of which Shakspeare has given us an admirable copy in the character of King Lear finely imagined to be a result of filial ingratitude.

β E. atonicum Mœroris. Ungovernable heart-ache. Description. Sometimes leads to apoplexy, and how: often to other corporeal evils. Tears and sighs a good omen, and why.

Yet sometimes convulsions ensue and death itself. In case of recovery the mind is long before it resumes its balance: and sometimes never. Finely exemplified in King Lear.

DESPAIR makes a near approach to heart-ache in the overwhelming agony it produces, and its pressing desire of gloom and solitude, but, generally speaking, the feeling is more selfish, and the mind more hurried, and daring. Despair, as it commonly shows itself, is utter hopelessness from mortified pride, blasted expectations, or a sense of personal ruin; heart-ache is either hopelessness from a sense of some social bereavement, or relative ruin. The

γ E. atonicum Desperationis. Ungovernable despondency. Despair how distinguished from the preceding.

* Relatio de Morbis anno 1720 Warsaviæ curatis. Dresd. 1730.

GEN. II. SPEC. II. ε E. atonicum Desperationis. Ungovernable despondency.

gamester who cares for no one but himself may rage with all the horror of despair; but the heart-ache belongs chiefly to the man of a warmer and more generous bosom, stung to the quick by a wound he least expected, or borne down, not by the loss of fortune, but of a dear friend or relative, in whom he had concentrated all his hopes. The

Illustrated.

well-known picture of Beverley is drawn by the hand of a master: and he is represented as maddened by the thought of the deep distress into which his last hazard had plunged his wife and family: but if his selfish love of gaming had not triumphed over his relative love for those he had thus ruined, he would not have been involved in any such reverse. While Beverley was in despair; it was his wife who was broken-hearted.

Causes innumerable.

The sources of this most agonizing emotion are enumerable, and from the total shipwreck of all hope on which it is founded there is no passion of the mind that

Suicide a frequent result.

drives a man so readily to an act of suicide. To live is horror; the infuriated sufferer feels himself an outcast from God and man, and though his judgement may still be correct upon other subjects, it is completely overpowered upon that of his actual distress, and all he thinks of and aims at is to withdraw with as much speed as possible from the present state of torture, totally regardless of the future, or falsely satisfying himself by a perversion of his judgement, that there is no crime in his doing so.

Guilty conscience,

One of the severest causes of despondency is a conscience labouring under a deep sense of guilt for some

—undivulged crime
Unwhipt of justice.

its effects in driving a culprit to a surrender of himself to justice.

And so severe has the anguish been, in many cases, that the tormented wretch thus haunted by himself, and hating the light of heaven, has been compelled, as the less evil of the two, to surrender himself to the laws of his country, and court the disgrace of a public execution. Yet

The feeling sometimes from imaginary causes;

the same miserable feeling has sometimes followed from an ideal cause, especially in a mind of natural timidity,

Gen. II. Spec. II. E. atomicum Desperationis. Ungovernable despondency. or false ideas excited by itinerant preachers.

or constitutionally predisposed to a gloomy view of nature. For such, by a mere exercise of their own meditations, but far oftener by the coarse, but empassioned oratory of itinerant preachers, are induced to believe that the Almighty has shut them out for ever from the pale of mercy, and that the bottomless pit is yawning to receive them. And under the influence of such an impression they too frequently work themselves up into a state of permanent insanity, or hurry themselves by their own hands into the horrors of a fate from which they feel assured that no repentance or power of religion can save them.

Common in great public calamities, and peculiarly in a relaxing atmosphere.

In the midst of great public calamities the passion of ungovernable despondency is apt to become epidemic, and particularly, as M. Falret has well observed, where the constitution of the atmosphere, from being moist and hot, and consequently relaxing and debilitating, favours its spread. In 1806 the feeling of desperation was so common at Paris, that sixty suicides occurred during the months of June and July; at Copenhagen, in the course of the same entire year, three hundred: and in 1793 about thirteen hundred at Versailles alone*. The sensation, however, whether general or individual, is most acute where there is little corporeal exertion, and consequently where there is time to cultivate and brood over it. Hence suicide is frequent in the distress of sieges, in the first alarm of civil commotions, or when they have subsided into a state of calmness, and the mischiefs they have induced are well pondered; but it seldom takes place in the activity of a campaign, whatever may be the fatigue, the privations, or the sufferings endured. On the fall of the Roman empire, and throughout the revolution of France self-destruction was so common at home, as at last to excite but little attention: it does not appear, however, to have stained the retreat of the ten thousand under Xenophon, and, according to M. Falret, was rare in the French army during its flight from Moscow.

Fall of the Roman empire.

Revolution of France.

* Falret, de l'Hypochondrie et du Suicide. 8vo. Paris, 1822.

GEN. II. SPEC. II. Empathema atonicum.

In all these varieties of empathema the art of the physician can do but little, and in many of them nothing whatever. Yet where the heart suffers acutely and the mind is deeply dejected, sedatives and antispasmodic cordials may occasionally be found useful; and, as the abdominal viscera are greatly liable to be affected, the appetite to fail, the liver to be congested, and the bowels rendered costive, these organs must be watched, and such relief be afforded as they may stand in need of. Where aperients are required the warm and bitter resins will generally answer the purpose best, alone or combined with rhubarb. Where love is the cause of disease, and the fair patient is young and delicate, suppressed menstruation, or even chlorosis is by no means unfrequent, followed by hysteria and other nervous affections that produce considerable trouble.

Empassioned depression.

Remedial treatment.

Medicine not of much avail: but may sometimes be employed advantageously.

Moral resources.

In all cases of mental dejection, however, a kind and judicious friend is by far the best physician: medicines may do a little, change of scene and country, of custom and manners, a little also; but the soothing of tenderness and indulgence, and the voice of that friendship which knows how to discriminate opportunities, and seasonably to alternate admonition with consolation will accomplish more in the way of cure than all the rest put together. The despondency produced by the real sense of a guilty conscience or the visionary belief of eternal reprobation, may derive important and most salutary advantage from religious instruction when conducted with a judicious attention to the exigency of the case. But much circumspection and adroitness are requisite upon this point, for so rooted is the feeling to be extirpated that no ordinary means will suffice for its eradication, while, if it be forcibly snapped off, it will shoot out the wider and grow ranker than ever.

Excitement of opposite passions, or sudden reverses have sometimes succeeded: especially under ava-

The excitement of an opposite passion, or train of feelings, has sometimes been accompanied with success: for there are instances in which the slave of imaginary pain and misery has for ever forgotten his sense of visionary grievances under the stroke of poignant and real affliction;

and the miser, when reduced by a sudden reverse of fortune to actual beggary, and thus completely disencumbered of the load that has hitherto so much oppressed him, has returned to his sober senses, and learned a juster estimate of worldly possessions.

Gen. II. Spec. II. Empathema atonicum. Empassioned depression. Treatment.

The same attempt has often been recommended in disappointments under the passion of love; and, according to the concurrent report of the poets of ancient and modern times, many of whom profess to be well versed in this kind of discipline, it has very generally been attended with success. Where the emotion has more of a corporeal than a sentimental origin, this may easily be conceived; and it is possible that it may also sometimes have occurred under a purer feeling: though, for the honour of the human heart, I do not think this is much to be trusted to. Where the choice between two young persons of fair character is really imprudent, yet the affections are so rivetted as to bid defiance to all forcible attempts to unfetter them, a promise of consent on the part of the reluctant parent at the distance of a given period of time, as a year and a half or two years, with an undertaking on the part of the lovers neither to see nor correspond with each other in the mean time, an engagement easily fallen into, has answered in many instances to which I have been privy. The ardour has gradually cooled on the one side or the other, the judgement has been more impressed with the nature of the imprudence, or a more attractive form has interposed, and settled the question irretrievably. While, on the contrary, if the fidelity should hold on both sides to the end, and the passion be heightened instead of depressed, as in this case there is most reason to suppose it would be, hard, indeed, must be the heart that would extend the restriction farther, and that would not wish joy to so deserving a couple.

rice and visionary grievances. How far successful in hopeless love.

Contingent assent has answered better.

SPECIES III.

EMPATHEMA INANE.

Hare-brained Passion.

WAYWARD AND UNMEANING PASSION, URGING TO INDISCRIMINATE ACTS OF VIOLENCE: AIR HURRIED AND TUMULTUOUS; COUNTENANCE FLUSHED; EYES GLARING AND PROMINENT.

GEN. II. SPEC. III.

Synonym of Pinel.

THIS is the *manie sans delire* of M. Pinel: a case of frequent occurrence but incorrectly named in this manner, since, in the opinion of all other nosologists, and perhaps all other pathological writers, the character of delirium (that is of diseased judgement, diseased perception, or both) is essential to mania.

Common origin.

M. Pinel ascribes this species principally, and with great force of reason, to a neglected or ill-directed education upon a mind naturally perverse or unruly: and gives the

Striking example.

following striking example: An only son of a weak and indulgent mother, was encouraged in the gratification of every caprice and passion of which an untutored and violent temper was susceptible. The impetuosity of his disposition increased with his years. At school he was always embroiled in disputes and quarrels; and if a dog or a horse offended him he instantly put it to death. This wayward youth, however, when unmoved by passions, possessed a perfectly sound judgement. When he came of age, he proved himself fully competent to the management of his family estate as well as to the discharge of his relative duties, and even distinguished himself by acts of beneficence and compassion. But his deep-rooted propensity to quarrel still haunted him, and

wounds, law-suits, and pecuniary compensations were the general consequence. At last an act of notoriety put an end to his career of violence. Enraged at a woman who had used offensive language to him, he tumbled her into a well. A public prosecution followed, and, on the testimony of a great many witnesses who deposed as to his furious deportment, he was condemned to perpetual confinement at the lunatic asylum of Bicêtre. GEN. II. SPEC. III. Empathema insane. Hare-brained passion.

On the commencement of the French revolution, when the mob broke open the doors of the prisons and the lunatic hospitals, to liberate all whom they thought unjustly confined and under restraint, a patient labouring under the present species in the Bicêtre asylum, pleaded his own cause so rationally, and pathetically, and so artfully accused the governor of the asylum of cruelty, that the armed rabble commanded him to be instantly liberated, and scarcely suffered the governor to escape with impunity. The patient thus restored to freedom was led about in triumph amidst the reiterated shouts of 'Vive la République!' The sight of so many armed men, their loud and confused noise and tumultuous conduct, soon roused the visionary hero to a fresh paroxysm of fury. He seized, with a vigorous grasp, the sabre of his next neighbour, brandished it about with great violence, and wounded his liberators indiscriminately. Fortunately he was soon mastered; when the savage mob thought proper to lead him back to his cell, and with shame and reluctance acknowledged their own ignorance and misconduct. Further illustrated.

The mode of treatment may be collected from the preceding pages. Remedial process.

GENUS III.

ALUSIA.

Illusion. Hallucination.

THE JUDGEMENT PERVERTED OR OVERPOWERED BY THE FORCE OF THE IMAGINATION; THE SPIRITS PERMANENTLY ELEVATED OR DEPRESSED; THE FEELINGS OF THE MIND DEPICTED IN THE COUNTENANCE.

GEN. III.

Origin of generic name.

ALUSIA is here derived from the Greek ἄλυσις, "aberratio", from ἀλύω, "errabundâ mente afficior",—"inquietus aberro:" whence the Latin term allucinatio or hallucinatio. According to the rule which renders the Greek *υ*, by the Latin *y*, the name of this genus ought rather perhaps to be *alysis;* but as the Latins have themselves retained the *υ* in all*u*cinatio, it is here suffered to continue in alusia, making a similar exception to that already observed in *lues*. The Greek term is preferred to the Latin, as the name of the genus, for the sake of uniformity. Sauvages, and after him Sagar, have employed hallucinatio as the name of an order; Darwin and Crichton as that of a genus, and, consequently, running parallel with the genus before us. Wherever the genus exists, hypochondrias or hypochondriasis is usually placed under it. It is so by Sauvages, Sagar, and Crichton; and it occupies the same place in Linnéus, who has merely adopted the term imaginarii instead of hallucinationes.

Synonyms.

Alusia embraces the two following species:

1. ALUSIA ELATIO. SENTIMENTALISM. MENTAL EXTRAVAGANCE.
2. ——— HYPOCHONDRIAS. HYPOCHONDRISM. LOW SPIRITS.

SPECIES I.

ALUSIA ELATIO.

Sentimentalism. Mental Extravagance.

ROMANTIC IDEAS OF REAL LIFE; ARDENT AND EXALTED FANCY; PLEASURABLE FEELINGS; FREQUENT PULSE; GREAT ACTIVITY; EYE KEEN AND LIGHTED UP; COUNTENANCE CONFIDENT AND ANIMATED.

GEN. III. SPEC. I. Species new to nosology and pathology.

THE merit or demerit of this species, named from the rhetoricians ELATIO, and with them importing "elevated, exalted, magnificent style or imagery", must, I fear, mainly rest with the author himself. It is, however, strictly derived from nature, and is intended to fill up what has hitherto been left as a vacant niche by the nosologists. Alusia, or hallucination, like ecphronia or insanity, comprises a list of affections that are characterised by two opposite states of nervous action, entonic and atonic, or in the language of Dr. Cullen excitement and collapse; elatio is intended to include the former of these, as hypochondrias, the ensuing species, is, the latter. They stand in the same relation to each other as elevated and dejected madness or melancholy. Both are united with a peculiar modification of the digestive function, but possessing opposite bearings; being in the former strikingly active and energetic, and in the latter strikingly sluggish and languid. Hence under the first species the patient is able to endure enormous fastings, and to support life upon the scantiest and least nutritive diet, either of which would be destructive under the second.

Analogy to ecphronia.

Relation of the present species to the ensuing.

Gen. III. Spec. I. Alusia Elatio. Sentimentalism. Mental extravagance.

This species embraces the following varieties :—

α Heroica. Chivalry. Romantic gallantry.
β Facetosa. Crack-brained wit.
γ Ecstatica. False Inspiration.
δ Fanatica. Fanaticism.

α A. Elatio heroica. Chivalry. Romantic gallantry. Description.

The age of the first of these varieties, that of CHIVALRY or ROMANTIC GALLANTRY, has nearly, if not altogether, departed. It may be regarded as a generous and high-spirited flight of the imagination that gives a visionary colouring to the external world, and combines, without a due degree of discrimination, ideas of fact with those of fancy. Like many of the varieties of empathema or ungovernable passion, it may lead to or be combined with ecphronia or insanity.

Sentimental novelists sometimes make an approach to it. Illustrated.

I have sometimes had to attend patients who, having spent the greater part of their days and nights over the most captivating novels of the present day, had acquired so much of this falsity of perception as to startle their friends around them, and to give evident proofs that they were of a mind occasionally deranged, though, when the attention could once be seriously engaged, capable of being brought down to the soberness of external objects and real life. These have commonly been ladies unmarried, or without a family, about the middle or a little beyond the middle of life, of a nervous temperament, fine taste and fancy, but whose education had been directed to subjects of superficial or external ornament rather than of intrinsic excellence. Their manner has been peculiarly courteous, their conversation sprightly and figurative, and their hand ready to aid the distrest. But it has been obvious that in all they were saying or doing they had some ideal character in their minds, whose supposed air, and language, and manners, they were copying; and the distrest were always most sure of relief and of a relief often beyond the necessity of the case, whose story was combined with some perilous adventure, or sentimental catastrophe.

In former times, however, when the wild and daring spirit of romance formed the subject of popular study, and

Gen. III. Sect. I. a A. Elatio heroica. Chivalry. Romantic gallantry.

> The spinsters, and the knitters in the sun,
> And the free maids that wove their threads with bones,
> Were wont to chaunt it,

But far more common and characteristic in former times.

this bewildering triumph of the imagination over the judgement was far more common, and carried to a much higher pitch. The high-toned and marvellous stories of La Morte d'Arthur, Guy of Warwick, Amadis of Gaul, The Seven Champions of Christendome, and The Mirror of Knighthood; the splendid and agitating alternations of magicians, enchanted castles, dragons, and giants, redoubtable combatants, imprisoned damsels, melting minstrelsy, tilts and tournaments, and all the magnificent imagery of the same kind, that so peculiarly distinguished the reign of Elizabeth, became a very frequent source of permanent hallucination. The historian of Don Quixote adhered strictly to the tenour of his times in representing the library of this most renowned knight as filled with romances of this description, and himself as being permanently crazed by an uninterrupted perusal of them. And that the same morbid effect was not confined to Spain, and was, indeed, common to our own country we know from the severe, but just invectives of Ascham against this class of writings, and his complaints of the disordered turn they had given to the public mind: and still more from the necessity Shakspeare felt himself under in making all his maniacal characters, whether really or but pretendedly so, deeply versed in the prose or poetical romances of the day, and throwing forth fragments of exquisite force or beauty in the midst of their wildest and most discordant ravings; Lear, Edgar, and the heart-broken Ophelia are in this respect alike gifted, and show to what sources their reading had been directed. Without an attention to these casual glances it is impossible to understand the meaning of the sentiment, and its force or feeling is lost upon us, as in the following burst

During the reign of Gothic or Norman romance.

Cervantes in his picture of Don Quixote true to the feeling of the times:

and hence the invective of Ascham.

Proved further from the reading justly allotted to many of Shakspeare's characters.

GEN. III. SPEC. I. α A. Elatio heroica. Chivalry. Romantic gallantry.

of Ophelia which consists of a string of quotations or allusions to picturesque customs:

> "You must sing *Down a-down an you call him adown-a.* O, how the wheel becomes it! It is the false steward that stole his master's daughter."

We have not space for the explanation, but it may be found in the commentators, or in the interesting and elaborate history of "Shakspeare's Times", by my early and valued friend Dr. Drake.

β A. Elatio facetosa. Crack-brained wit.

The SECOND VARIETY of the present species, that of CRACK-BRAINED WIT, is derived rather from the peculiar temperament of the individual, than from any particular habit or train of reading; for in general, few persons have given themselves less time to read, study, or even think, than those who are possest by it. It is characterized by high spirits, a sportive and rampant imagination, and a flow of facetious ebullient wit incapable of restraining itself. It is hence often poured forth on most improper occasions, and hesitates not to sacrifice a friend at the shrine of a jest.

Description.

Exemplified.

There are some persons who possess by nature so perpetual a tide of excitement that their high spirits seem seldom or never to ebb, and so irresistible a propensity to this kind of verbal merriment that no change of circumstances can deprive them of it. Sir Thomas More, who perhaps overflowed with this disposition in a very high degree, is well known to have been facetious on his own scaffold.

Ready wit not necessarily connected with a sound judgement; Often widely distinct from it:

and hence may exist in a deranged mind.

It is not always however, nor, as we have just observed, even for the most part, that the man of ready wit is, like Sir Thomas More, a man of ready judgement, or sound learning. The apprehension necessary to constitute the one is widely different from that necessary to constitute the other, as we had occasion to remark under a former genus: and hence vivacious sallies, taunts, and repartees not only may co-exist with a deranged condition of mind, but are frequently a result of it. And on this account the court jester of former times, whose office succeeded to that of minstrel, was commonly denominated the king's

fool, as uttering from the unbridled liberty of speech that was allowed him, humorous flashes of rebuke which no man in his sober senses would have ventured upon; and which seemed, to adopt the language of Jaques, who was himself not unjustly accused of wearing the same livery, to show that

Gen. III. Spec. I. β A. Elatio facetosa. Crack-brained wit. On this account the court wit or jester denominated fool.

> in his brain
> Which is as dry as the remainder bisket
> After a voyage, he hath strange places cramm'd
> With observation, the which he vents
> In mangled forms.

The THIRD VARIETY, or ECSTATIC ILLUSION, is also a pleasurable hallucination: and consists in a sense of false inspiration, or a visionary boast of some preternatural endowment, in the course of which the judgement is so far perverted as to mistake the energetic notions of the imagination for realities; so that the victim of the delusion believes in apparitions, affects an intercourse with the world of spirits, or lays claim to a power of working miracles.

γ A. Elatio ecstatica. False inspiration. Description.

This morbid afflatus has often been aped by cunning impostors to serve their own interests with the multitude: and there is no great difficulty in conceiving that it is in many cases a real and serious hallucination, when we reflect on the ease with which such impostors themselves are capable of deluding the populace and working them up into false ecstasies, and especially of inveigling them into a hearty belief of their own miraculous powers. When the passions of men are once set afloat, and the subject presented to them is full of the marvellous and the terrible, they are too apt to confound the false with the real, and are prepared to proceed to whatever extremities the magician may choose to lead them. We are told by Lucian that when Archelaus, a celebrated Greek actor, performed the part of Andromeda in the tragedy of Euripides, several of the spectators were seized with a delirium; some at the time of performance, others a day or two afterwards; during which they did nothing but declaim in a theatrical manner, and piteously lament the fate of the persecuted

Has often been aped by cunning impostors.

How produced in other persons.

Illustrated.

Gen. III. Spec. I. γ A. Elatio ecstatica. False inspiration.

princess. Burton, therefore, has some reason for remarking that what the impostors before us, or the brain-sick enthusiasts whom they imitate, once broach and set on foot, "be it never so absurd, false, and prodigious, the common people will follow and believe. It will run like murrain in cattle, scab in sheep. Nulla scabies superstitione scabior; as he that is bitten by a mad dog bites others, and all in the end become mad. Either out of affection of novelty, simplicity, blind zeal, hope, and fear, the giddy headed multitude will embrace it, and without farther examination approve it" *.

Temperament and habit usually necessary to produce it.

The genuine enthusiast is always possest of a warm imagination, and generally of a nervous temperament, and delicate frame; and a long series of elevated abstraction on religious subjects, combined with protracted fasting, has ordinarily been the harbinger of the fancied afflatus.

Exemplified in Saint Teresa.

Such was the discipline by which the lovely, and blooming, and sincerely devout Saint Teresa was prepared for ecstasies and visions, and led to impose upon herself and all that beheld her; and seriously to believe, in the fervour of her mind, that her body was lifted from the earth: and that she heard the voice of God, saw our Lord with St. Peter and St. Paul standing on her left hand; by the first of whom the cross, which was at the end of her beads, was miraculously transformed into four large gems, incomparably more precious than diamonds; with many other marvellous revelations which we cannot find room to detail. Though it should be noticed that devils appeared to her as well as blessed spirits, whom she always kept at a distance by sprinkling holy water; and that she was an eye-witness to the joyful escape from the flame of purgatory of the purified souls of father Peter of Alcantara, father Ivagnez, and a Carmelite friar †.

Cure difficult.

It is not necessary to produce other examples, though many might be brought from our own times. A cure is extremely difficult to be obtained; and I am afraid that

* Anatomy of Melancholy, Part III. Sect. IV. 1. 3.

† Butler's Lives of the Saints, in loco.

even Mr. Locke's admirable chapter on Enthusiasm would be read to no purpose. In one instance the enthusiast seems to have been brought home to himself by a pleasant and ingenious stratagem of his superintendant at Venice. This visionary had conceited himself to be Elias, and like the prophet, had determined upon fasting forty days. The keeper fearful that he would never hold out, and that he should lose his patient, dressed up a man in the attire of an angel, who was introduced to him in no ordinary manner, and informed him that he was commissioned from Heaven to bring him food. The supposititious Elias took it, was afterwards allowed to find out the trick, and thus, at the same time, found out his own imposition upon himself.

Gen. III. Spec. I. γ A. Elatio ecstatica. False inspiration. Has been effected by stratagem. Example.

From the influence which we have seen such enthusiasts, or even pretended enthusiasts, capable of producing upon the mind of the multitude when roused by the solemnity and awfulness of the revelations that are supposed to be disclosed to them, we can easily see how FANATICISM, constituting the FOURTH VARIETY of the present species, may obtain an ascendancy, and even rage with all the ramifying power of an epidemic: consisting of religious flights of the imagination, predominant over the natural feelings as well as the judgement, excited by the calls or doctrines of those who affect to be preternaturally gifted, or who possess an equal influence over the mind by the high sanction of priesthood, profound learning, or any other respected authority: and often urging to a voluntary and inappropriate submission to severe privations, mortifications, and tortures; or to the torture and massacre of those who profess different creeds.

δ A. Elatio fanatica. Fanaticism. Description.

Examples, as in the last variety, may be found in every age and religion, but chiefly in times of gross ignorance and barbarism; where the general mind has been too little informed to distinguish between truth and sophistry, and the passions have been undisciplined to restraint. It is hence of no importance what religion or superstition is to be inculcated, for those that are true and those that are false have been equally laid hold of by enthusiasts and

Chiefly a delirium of ignorant and barbarous times. Truth or falsehood of the principles appealed to, of no im-

GEN. III. SPEC. I. γ A. Elatio ecstatica. False inspiration.

impostors to produce the same end, and effect the same triumph by means and machinery that could only be furnished from the infernal regions. Hence the blood and raving of the prophets of Baal; the Curetes or Phrygian priests, and the delirious votaries of the Indian Juggernaut; the cruel and senseless penances and punishments sustained in many of the convents and nunneries of Lamism, and still more so in those of many catholic countries. Hence the terrible sufferings of the Waldenses, the furies of St. Bartholomew's day, the fires of Smithfield, and the dark and doleful cells, the whips, and wires, and pincers, and pullies, and all the infernal paraphernalia of the Inquisition. Hence, in ancient times, the matrons of Canaan and of Carthage were instigated to throw their own children into the flames, and sacrifice them to the gloomy deity whose anger it was held necessary to appease; and hence in more modern days, Philip II. of Spain, was goaded to impeach a son, of whom he was little worthy, before the Chamber of Inquisitors, to bespeak their condemnation of him, and to take effectual care that he should be poisoned, as soon as his sentence had been pronounced.

portance in producing the effect.

Prophets of Baal.

Phrygian priests.

Indian Juggernaut.

Lamism.

Sufferings of the Waldenses.

St. Bartholomew's day.

Inquisition.

Philip II. of Spain.

Cure to be obtained chiefly by general instruction and a diffusion of genuine knowledge.

The cure of these diseases belongs rather to colleges of general instruction than of medicine. Individual cases of enthusiasm and fanaticism have existed, and will probably continue to exist, in all ages; but when the general mind is well informed, and the social feelings and virtues, are duly estimated and widely cultivated, the wild-fire will burn in vain, and meet with little or no fuel to support its rage.

SPECIES II.

ALUSIA HYPOCHONDRIAS.

Hypochondrism. Low Spirits.

GLOOMY IDEAS OF REAL LIFE; DEJECTED SPIRITS; ANXIETY; DYSPEPSY; LANGUID PULSE; INDISPOSITION TO ACTIVITY; EYE OBLIQUE AND SCOWLING; COUNTENANCE SAD AND SULLEN.

GEN. III. SPEC. II. Explanation of the specific term.

THE term HYPOCHONDRIAS is taken from the anatomical compound hypochondria, to which region the disease was formerly supposed to be altogether confined. Hypochondrias is here used instead of hypochondriasis, the common name, because, as already observed on various occasions, *iasis* as a termination is limited, nearly with this single exception, to denote in the medical vocabulary a peculiar family of cutaneous diseases, as pityriasis, psoriasis, ichthyiasis, and many others. The author has felt the less difficulty in proposing this change, as hypochondriasis is of comparatively modern invention, and is not to be met with in the Greek or Latin writers; by whom the complaint is usually alluded to or described as a species of melancholy, or rather as a disease of the melancholic temperament.

How explained by Galen in his controversy with Diocles.

It constitutes the third sort or species of this malady described by Galen, and which he regards as connected with a peculiar state of the stomach; though, from its mental symptoms, he does not incline to contemplate it as Diocles, a contemporary physician of reputation, had done in his Book on Gastric Affections, as a simple disease of this organ. The controversy has been in different times continued to our own day; and it does not seem to

The controversy not yet settled.

GEN. III. SPEC. II. Alusia Hypochondrias. Hypochondrism. Low spirits.

be even yet universally settled whether hypochondrias should be regarded as a mental or a dyspeptic malady. M. Esquirol, and M. de Villermay*, contemplate it in the latter light, M. Georget† and M. Falret, though a pupil of M. Esquirol, refer it in every instance to the brain as its primary seat‡. In Pinel the disease seems to be included under *aliénation mentale*, and its different varieties to be distributed, though without particular remark, amidst the five species into which he has divided that genus.

How arranged by Pinel.

Close resemblance to some varieties of genuine melancholy; and may originate from like causes.

The present species bears so near a resemblance to several of the varieties of genuine melancholy as to be often distinguishable from them with great difficulty; and the more so as it is no uncommon thing for hypochondrias to terminate in melancholy, or for melancholy to be combined with hypochondrias §. Both may be the result of a predisposing constitution, or may be primarily induced by accidental causes where no such constitution exists: and the predisposition and the accidental causes of the one may become those of the other: for the temperament known by the common name of melancholic, and characterized by a lean and dry corporeal texture, small and rigid muscles, a sallow skin, brownish-yellow complexion, little relieved by redness of any kind, deep-black and coarse hair, eyes sunk in hollow sockets, large prominent veins, especially in the hands and arms, with a tendency to solitude and private musing, is a common precursor of both. And in like manner a sedentary life of any kind, and especially severe study protracted to a late hour in the night, and rarely relieved by social intercourse, exercise, or nugatory amusements; a debauched and dissolute habit, or excesses in eating and drinking, may become causes of either of these maladies, from accessory circumstances that cannot be traced out even where the predisponent temperament does not seem to

* Traité des Maladies Nerveuses, &c.

† Sur la Folie—Physiologie du Cerveau.

‡ De l'Hypochondrie et du Suicide, &c. 8vo. Paris, 1822.

§ Falret, de l'Hypochondrie, &c. ut suprà passim.

exist. But it is very justly observed by Sir A. Crichton that even in those "whose health is much deranged, true melancholy seldom arises, except mental causes of grief and distress join themselves to the corporeal ones: and this constitutes one of the characters which distinguishes melancholia *vera* from hypochondriasis. The former may be said to be always excited by mental causes, and consists in various phænomena of grief, despondency, and despair; whereas the latter most commonly arises from corporeal causes, and its mental phænomena consist of erroneous ideas entertained about the patient's own make or body" *.

Gen. III. Spec. II. Alusia Hypochondrias. Hypochondrism. Low spirits. Descriptive character.

The corporeal causes are usually a diseased condition of one or more of the digestive organs, and especially, as we shall presently have to observe, a displacement of some part of the colon. It is also not unfrequently a result of the sudden cessation of some periodical or other habitual discharge, as that of an issue, or of a hemorrhoidal flux, a chronic ulcer, or some external eruption.

Ordinary corporeal causes.

The melancholy man seldom lives long, and his disorder often commences in the meridian of life. He frequently terminates his days by violence, or at the utmost never attains old age. The hypochondriac seldom becomes affected till after the meridian of life, and very generally continues to the stage of longevity.

The common corporeal symptoms are a troublesome flatulency in the stomach or bowels, acrid eructations, costiveness, a copious discharge of pale urine, spasmodic pains in the head and other parts of the body, giddiness, dimness of sight, palpitations, general sleeplessness, and an utter inability of fixing the attention upon any subject of importance, or engaging in any thing that demands vigour or courage. The mental feelings, and peculiar trains of ideas that haunt the imagination and overwhelm the judgment, exhibit an infinite diversity, and lay a foundation for the three following varieties:

Diagnostics.

* Of Mental Derangement, Vol. III. p. 235.

GEN. III. SPEC. II.		
	α Autalgica.	Vapours.
	β Pertæsa.	Weariness of life.
	γ Misanthropica.	Misanthrophy. Spleen.

α A. Hypochondrias autalgica. Vapours.

In the FIRST VARIETY, which is commonly distinguished by the name of VAPOURS, or LOW SPIRITS, the patient is tormented with a visionary or exaggerated sense of pains or some concealed disease; a whimsical dislike of particular persons, places, or things; or groundless apprehensions of personal danger or poverty.

Description.

Exemplified.

Greding gives an account of a medical practitioner who applied to him for assistance, under an impression that his stomach was filled with frogs, which had been successively spawning ever since he had bathed, when a boy, in a pool in which he had perceived a few tadpoles. He had spent his life in trying to expel this imaginary evil, and had travelled to numerous places to consult the first physicians of the day upon his obstinate malady. It was in vain to attempt convincing him that the gurglings or borborygmi he heard were from extricated and erratic wind. He argued himself, says M. Greding, into a great passion in my presence, and asked me if I did not hear the frogs croak.

Additional illustration.

I have at this moment under my care, a hypochondriac of about fifty years of age, who affords a sufficient proof that Moliere drew his Malade Imaginaire from nature, and hardly added an exaggerating touch. His profession is that of the law; his life has been uniformly regular, but far too sedentary and studious. Without having any one clearly marked corporeal affection, he is constantly dreading every disease in the bills of mortality, and complaining one after another of every organ in his body; to each of which he points in succession as its seat: especially the head, the heart, and the testes. He now suspects he is going to have a cataract, and now frightens himself with an apprehension of an involuntary seminal emission. It is rarely that I have left him half an hour, but I have a note to inform me of some symptom he had

forgotten to mention, and I have often five or six of these in the course of the day. The last was to state that shortly after my visit he had had a discharge of three drops of blood from the nose—a change which he thought of great importance, and requiring immediate attention. His imaginary symptoms, however, soon disappear, provided they are listened to with gravity and pretended to be prescribed for; but not otherwise. Yet in disappearing they merely yield to others that can only be surmounted in like manner. His head is too much confused to allow him to engage in any serious study, even if it were prudent to recommend it to him: but on all common subjects he is perfectly clear, and will converse with shrewdness and a considerable extent of knowledge. His bowels are sluggish: his appetite not good though he eats sufficiently; his sleep is unquiet, but he has enough of it without opiates; his pulse is variable, sometimes hurrying on abruptly, and without any obvious cause to a hundred strokes in a minute, but often very little quicker than in a state of health. His tongue varies equally, and is irregularly clean, milky, and brownish, and then suddenly clean again. He is irritable in his temper, though he labours to be calm; and is so rooted to his chamber that it is difficult to drag him from it. He has now been ill about ten weeks, but it is during the winter, and the season is too severe and inclement for him to venture abroad. I look forward to his restoration in the spring from exercise, change of air, and a course of tonic medicines. I have not found him complain of dysphagia *globosa*, or that sense of suffocation from the feeling of a constringing ball in the throat which is so common to hysteric patients, and which, from its being often also traced in the present disease, has been called by Pechlin suffocatio *hypochondriaca* *; but his spirits are in a state of almost perpetual depression.

GEN. III. SPEC. II. a A. Hypochondrias autalgica. Vapours.

A superficial and injudicious perusal of medical books, addressed to those who are not of the profession, has been a frequent source of this affection. M. Viller-

An injudicious perusal of medical books a frequent cause.

* Lib. I. Obs. 31.

Gen. III. Spec. II. a A. Hypochondrias autalgica. Vapours.

may distinctly states as one of its causes among his own countrymen a "lecture habituelle de Buchan". Rousseau admitted that this was a powerful cause of hypochondrias in respect to himself. "Having read", says "he, a little on physiology I set about studying anatomy; and passing in review the number and varied actions of the parts which compose my frame, I expected twenty times a day to feel them going wrong. Far from being astonished at finding myself dying, my astonishment was that I could live at all. I did not read the description of any disease which I did not imagine myself to be affected with: and I am sure that if I had not been ill I must have become so from this fatal study. Finding in every complaint the symptoms of my own, I believed I had got them all, and thereby added another still more intolerable—the fantasy of curing myself."

Exemplified from Villermay.

J. J. Rousseau.

Fancies entertained by the patient often extravagantly ludicrous.

Marcellus Donatus.

The whims that are sometimes seriously entertained under this variety of the disease, are so truly ludicrous that "to be grave exceeds all power of face." One thinks himself a giant, another a dwarf; one is as heavy as lead, another as light as a feather. Marcellus Donatus makes mention of a baker of Ferrara who thought himself a lump of butter, and durst not sit in the sun nor come near the fire for fear of being melted. They are all extremely timid, and their fears are exercised upon trifles, or are altogether groundless. Some suspect their nearest and dearest friends of designing to poison them: others dare not be alone in the dark lest they should be attacked with ghosts or hobgoblins. They dare not go over a bridge or near a pool, rock or steep hill, lest they should be tempted to hang, drown, or precipitate themselves: and if they come to a place where a robbery or a murder has been committed, they instantly fear they are suspected. Trincavellius had a patient that for three years together could not be persuaded but that he had killed a man, and at length sunk into a confirmed melancholy, and made away with himself for fear of the gallows *.

Trincavellius.

* Consil. XIII. Lib. I.

Gen. III. Spec. II. α A. Hypochondrias autalgica. Vapours.

It is a melancholy reflection that the wisest and best of mankind are as open to this affliction as the weakest, and perhaps more so. Pascal himself was at one time so hallucinated with hypochondrism, as to believe that he was always on the verge of an abyss into which he was in danger of falling. And under the influence of this terror, he would never sit down till a chair was placed on that side of him on which he thought he saw it, and thus proved the floor to be substantial.

Often induced by an excess of spirituous liquors.

It is frequently induced by too free a use of spirituous liquors, the stomach and other digestive organs being hereby debilitated and almost paralysed; and where this is the case the disease is apt to terminate in that exhausted state of the nervous system generally, and delirious condition of the brain, which by some writers has been called delirium *tremens*; in which the mind and body exhibit equal feebleness, combined with a high degree of irritability, and the patient often falls a sacrifice in a few days: previous to which, he is worn out with convulsive struggles, succeeded by a cold and general perspiration; the pulse increases in rapidity and becomes thready, and the twitching of the tendons subsides into a tremour that spreads over the whole body; the countenance is pale and anxious, the patient mutters with incessant rapidity, and the DELIRIUM is constant, though easily interrupted by questions addressed to him. In one case, says Mr. Blake, who has given a good description of the complaint, the mind was so diseased that the patient after being desired to put out his tongue, continued for nearly half an hour to push it out and draw it in alternately in quick succession whenever I looked towards him*. If before this extremity takes place a sound and refreshing sleep creep gradually over the frame, the irritability subsides, a healthful quiescence succeeds to general commotion, and the mind and the body become by degrees re-invigorated.

Delirium tremens, what.

β A. Hypochondrias pertæsa. Weariness of life.

Under the SECOND VARIETY we meet with a totally dis-

* Edin. Med. and Surg. Journal. Oct. 1823. p. 501.

Gen. III. Sect. II. β A. Hypochondrias pertæsa. Weariness of life.

tinct set of morbid feelings and ideas; for the patient is here oppressed with a general listlessness and disgust; an irksomeness and weariness of life, often without any specific reason whatever. This is the melancholia *Anglica* of Sauvages, who describes it as common to our own countrymen; under the attack of which, says he, "languid, sorrowful, tired of remedies of every kind, they settle their affairs, make their wills, take leave of their friends by letters, and then put an end to their lives by hanging, poison, or some other means: exhibiting a wish to die, not from insanity or severe grief, but tranquilly from a mere tædium vitæ, or irksomeness of existence." This may occasionally be the case; but by far the greater number of suicides in our own country proceed, not from hypochondrism, but a despondency produced by real losses, and belong, therefore, as I have already observed, to the genus empathéma. Yet this miserable upshot occurs in a few instances from the feeling, or rather the want of feeling here assigned: the perpetrators of the horrid deed being generally those who having been actively engaged in the hey-day and meridian of life, have retired upon their fortunes with a view of enjoying them in quiet; but who unhappily find themselves fitted for any thing rather than for quiet; who have no taste for reading, reflection, or domestic tranquillity, and are too proud to return to the bustle of the world and the excitement of nicely balanced speculations. There is here a want of the habitual stimulus to a secretion of sensorial power; in consequence of which, the individual sinks into a state of low spirits and becomes unhappy. A like issue frequently follows upon a life devoted to all the pursuits of sensual gratification, in the course of which the individual has exhausted his stock of enjoyments, and worn out his powers of body and mind before he has reached little more than the midway of his existence. Every thing now palls upon his senses, and he has neither taste nor energy to engage in more rational pursuits. "A ride out in the morning, and a warm parlour and a pack of cards in the afternoon, are all that life affords," said a patient of

Ascribed by Sauvages to Englishmen chiefly.

This account not strictly correct: though true occasionally.

Common origin an ill-advised retirement from irritant pursuits in those who are not qualified for quiet life.

Dr. Darwin's to him, a man of polished manners, about fifty years of age. He got tired of these in a few months, and having no other resource, shot himself*. Gen. III. Spec. II.

γ A. Hypochondrias misanthropica. Spleen. Misanthropy. Description.

Burton has well described the state of mind of many that are tormented with this most wretched malady†: but still more so those affected with the THIRD VARIETY, which is strikingly accompanied with peevishness, general malevolence, and an abhorrence of mankind. "They are soon tired with all things; they will now tarry, now be gone; now in bed they will rise, now up, then go to bed; now pleased, and then again displeased; now they like, by and by dislike all, weary of all; sequitur nunc vivendi nunc moriendi cupido, saith Aurelianus‡: discontented, disquieted; upon every light occasion or no occasion object; often tempted to make away with themselves; they cannot die, they will not live: they complain, weep, lament, and think they lead a most miserable life: never was any man so bad. Every poor man they see is most fortunate in respect of them: every beggar that comes to the door is happier than they are; jealousy and suspicion are common symptoms in the misanthropic variety. They are testy, pettish, peevish, distrustful, apt to mistake, and ready to snarl upon every occasion, and without any cause, with their dearest friends. If they speak in jest the hypochondriac takes it in good earnest; if the smallest ceremony be accidentally omitted he is wounded to the quick. Every tale, discourse, whisper, or gesture he applies to himself. Or if the conversation be openly addressed to him, he is ready to misconstrue every word; and cannot endure that any man should look steadfastly at him, laugh, point the finger, cough or sneeze. Every question or movement works upon him, and is misinterpreted, and makes him alternately turn pale and red, and even sweat with distrust, fear, or anger."

As in this species the body is more affected than in

* Zoonom. Vol. IV. p. 90. Edit. 8vo.

† Analysis of Melanch. Part. I. Sect. III. i. 2. ‡ Lib. I. Cap. VI.

GEN. III. SPEC. II. Alusia Hypochondrias. Hypochondrism. Low spirits.

any other division of mental alienation, more may often be accomplished by MEDICINE; though we must by no means be inattentive to moral discipline. The skin is very frequently cold and without a free secretion, and hence, general friction with rubefacients and the warmer diaphoretics have often been found serviceable. The digestive organs are almost always torpid, and several of them, especially the stomach and liver, secrete their respective fluids not only in too small a quantity, but of an unhealthy quality, so as to be too viscid, too dilute, or morbidly stimulant. Some kind of acrimony, indeed, is almost always found in the stomach, and particularly that of acidity. And hence aperients, carminatives, and particularly the tonic plan which has already been recommended under LIMOSIS *Dyspepsia*, are manifestly called for, and will often be found serviceable.

Medical treatment.

Remedial process.

Warm diaphoretics.

Warm aperients, and carminatives.

Singular misplacement of the colon often found on dissection.

Post-obit examinations have also frequently pointed out another local cause which otherwise we should little expect: and that is a displacement of the transverse colon. M. Pinel, as we have already observed, regards this as a very common cause of insanity in all its forms: but there can be no question that it is a powerful and ready cause of the present species of mental alienation. M. Esquirol, who has found it as frequently as M. Pinel, tells us that this displacement sometimes consists in an oblique, and sometimes in a perpendicular direction of the intestine, so that its sinister extremity lies behind the pubes; whilst it has sometimes descended into the form of an inverted aorta even below the pubes and into the pelvis. No disease of the organization has been found in any instance, and hence the change of place must proceed from relaxation and debility alone, where the misposition is not connate; on which account it may, in some instances, be an effect, as it is certainly a cause in others. It is under these circumstances that we chiefly meet with that pain in the epigastrium to which we have already adverted, and which gives the feeling of a tight cord surrounding the body in the line of distress; and

Generally a result of debility, and hence often an effect.

Tight pain in the epigastrium from this cause.

when such a symptom, therefore, occurs, we have reason to suspect the cause of the disease to be produced by some derangement of the colon in respect to position. Under the operation of such a cause the art of medicine can do but little: temporary ease, however, may be obtained by the pressure of a belt broad enough to support the whole of the lower belly; and it is possible that the intestine may gradually right itself under a course of the warmer tonics, as columbo, canella alba, and cassummuniar, or lose its morbid irritability by habit. But these are rare terminations; for more generally the displacement increases, and the disease itself gains ground and becomes more incurable.

Gen. III. Spec. II. Ataxia Hypochondrias. Hypochondriasm. Low spirits. Medical treatment.

How to be palliated.

Congestions from weakness of vascular action in one or more of the abdominal viscera, are a frequent result of the present complaint, and not unfrequently a primary cause: and hence we may see why the bleeding piles should be serviceable in so many instances as to obtain from Alberti the name of *medicina hypochondriacorum* *, and why leeches repeatedly applied to the anus, as recommended by Schoenheyder, should often have a like beneficial effect †. This is of the greatest importance where the disease has been preceded by a periodical flow of blood from the hemorrhoidal veins: and should point out to us the necessity of renewing any other discharge or external irritation to which the system may have been accustomed.

Disease often relieved by mariscal hemorrhage, or leeches applied to the anus.

Chronic discharges to be renewed whenever suddenly obstructed.

Opium is a very doubtful medicine, though strongly recommended by Deidier and other respectable writers; and readily had recourse to by hypochondriacs themselves to relieve their distressful sensations. Dr. Cullen asserts peremptorily that he has always found a frequent use of opiates pernicious in hypochondriacs ‡: and in many instances in which I have myself been tempted to employ it, I have been compelled to withhold its further use from its doing more mischief than good. It has often, in such

Opium doubtful.

* Dissert. de Hæmorrhoidibus. Halle. 1716.

† Act. Soc. Med. Hafn. II. p. 313.

‡ Mat. Med. Vol. II. p. 245. Edit. 4to.

Gen. III. Spec. II. Alusia Hypochondrias. Hypochondriasm. Low spirits.

cases, been exchanged for other sedatives, but rarely with any decided advantage.

Exercise, especially on horseback.

Exercise of all kinds should be encouraged in every modification of the disease, but especially exercise on horseback, though it is seldom in the first and third variety we can succeed in getting a patient to try it. The diet should be governed by the principles already laid down for treating indigestion.

Moral management.

In the MORAL MANAGEMENT, assiduous kindness and consoling conversation produce a deeper effect than they seem to do. Loquacity is always hurtful, but a talent for cheerful discourse, intermixed with interesting and amusing anecdotes, frequently draws away the patient's attention from himself, and becomes a most useful palliative. In the autalgic variety, in which he is perpetually haunted with a feeling of some dreadful disease which exists no where but in his own fancy, the hallucination, when we possess his confidence, should be removed by a candid statement of the fact, and, if necessary, friendly expostulation: but the moment we find the prepossession is too strong to be removed by argument, it is better to humour the conceit and to pretend to prescribe for it. It is sometimes necessary, indeed, for the hypochondriac is often possessed of great cunning, to drop all pretensions whatever, and to put him in good earnest upon a course of medicines for a disease we know he is as free from as ourselves. Thus a firm belief that he has an inveterate itch is a common delusion with a patient of this kind, and it will be often found impossible to persuade him that he is cured till his whole body has been repeatedly rubbed over with sulphur or hellebore ointment. I had lately under my care a special pleader of considerable eminence, who in the course of this affection would have it that he had the pox. I at first argued the point with him day after day, but to no purpose; he felt certain that he should never be well till he was not only salivated, but had used tonic injections for a gleet which he said accompanied it, though he had no discharge whatever. It was in vain to deceive him by supposititious medicines, for he was a man of con-

In the autalgic variety sometimes necessary to humour the prevailing fancy.

Exemplified.

siderable learning, and well acquainted with medical preparations, and I hence allowed him his heart's desire; he rubbed in mercurial ointment every night, and for an injection used a solution of zinc. In a week he persuaded himself he was well, and begged permission to desist from a farther use of the remedies; a permission which was readily granted him.

GEN. III. SPEC. II. Alusia Hypochondrias. Hypochondrism. Low spirits. Moral treatment.

In the second variety, or tædium vitæ, where the time seems to hang intolerably heavy on the patient's hands, from his having in a mistaken search after happiness, relinquished a life of constant excitement and activity for the fancied delights of rural retirement and quiet, the best and most radical cure would be a return to the situation that has been so unfortunately abandoned: but if this cannot be accomplished the patient must be put into a train of pursuits of some other kind. If he be fond of the sports of the country, he should weary himself in the day time with hunting or shooting, or even horse-racing rather than be hypochondriacal from idleness; and spend his evenings in the bustle of dinner-parties, or cards. And if he be capacified for higher and more useful occupations, let him plunge headlong into the public concerns of the parish and its neighbourhood, become a member of its select vestries, a trustee of the highways, or a magistrate of the district. The habit of excitement must for some time be maintained, though it be afterwards let down by degrees: and the intermediate steps are of no great importance so far as they answer their purpose. We are not at present arguing the case upon a principle of ethics or of religion; but merely upon a principle of moral medicine. Yet I have often known persons of the above description broken in by degrees to a love of domestic quiet, for which they were by no means fitted when they first entered upon it: and who, with a love of domestic quiet, have settled also, as a soberer stage of life has advanced, and reflection has gained ground upon them, into a love of strict moral order, and the higher duties of a conscientious Christian, to which at one time they seemed as little disposed.

Treatment in the second variety, or tædium vitæ.

A return to past pursuits:

or new pursuits engaged in with great vigour.

Country sports:

or a routine of public duties.

Happy result of the above in various cases.

GENUS IV.

APHELXIA.

Revery.

INACTIVITY OF THE ATTENTION TO THE IMPRESSIONS OF SURROUNDING OBJECTS DURING WAKEFULNESS.

GEN. IV. Origin of the generic term.

APHELXIA is derived from ἀφέλκω "abstraho, retraho, avoco, abduco"; and is in use among the Greek writers.

Subject almost new to medicine.

The subject is almost if not altogether new to nosology, and has seldom been dipt into by physiologists. Dr. Darwin occasionally touches upon it in various parts of his "Zoonomia", and Dr. Crichton in his "Inquiry into the Nature of Mental derangement", and it is well described and illustrated by La Bruyere in his "Characters"; but it yet remains to be analyzed and reduced to a nosological method, and examined in a pathological view. A few leading ideas upon this subject have already been thrown out by the author in his comment upon the present definition in the volume of Nosology; and of these he will avail himself in treating of it more at large.

Means of our becoming acquainted with an external world; external senses: due secretion of nervous fluid: exercise of the faculty of attention.

In order to our becoming acquainted with the existence of surrounding objects, or of an external world, as it is called by psychologists, three things are necessary: sound external senses; a secretion of the nervous fluid, apparently under different modifications, whereby they are made capable of being roused or excited by the different objects addressed to them; and an exercise of the faculty of attention to the impressions which are

thus produced. The will has, or ought to have, a power of calling this, as well as every other faculty of the mind, into a state of exertion or of allowing it to be indolent; and it is chiefly upon this want of power, or the same power intensely exerted, that the phænomenon of revery depends; thus giving rise to the three following species of mental aberration:

Gen. IV. Aphelxia. Revery.

Power of the will in summoning the attention:

Revery depends upon this power intensely exerted, or wanted.

1. APHELXIA SOCORS. ABSENCE OF MIND.
2. ——— INTENTA. ABSTRACTION OF MIND.
3. ——— OTIOSA. BROWN-STUDY.

Distinctive characters.

In the first of these, the attention is truant and does not yield readily to the dictates of the will: in the second, it is rivetted at the instigation of the will itself to some particular theme unconnected with surrounding objects: and in the third, it has the consent of the will to relax itself, and give play to whatever trains of ideas are uppermost or most vivacious in the sensory.

SPECIES I.

APHELXIA SOCORS.

Absence of Mind.

TRUANT ATTENTION; WANDERING FANCY; VACANT OR VACILLATING COUNTENANCE.

Gen. IV. Spec. I. Illustrated.

THIS is an absence or vacuity of mind too common at schools and at church; over tasks and sermons; and there are few readers who have not frequently been sensible of it in some degree or other.

In reading books in which we are totally uninterested, composed in a tedious and repulsive style, we are almost continually immersed in this species of revery. The will

GEN. IV. SPEC. I. Aphelxia socors. Absence of mind.

does not exert its power; the attention is suffered to wander to something of stronger attraction; or the imagination is left to the play of its own nugatory ideas; and, though we continue to read, we have not the smallest knowledge of the argument before us: and if the subject to which the train of our thoughts is really directed be of a strikingly ludicrous character, we may possibly burst into a laugh in the middle of a discourse of great gravity and seriousness, to the astonishment of those around us.

Sometimes the will loses its power for want of habit.

This is a common case, and may lead to great embarrassment. We have nevertheless thus far supposed that the will does not exert its power, and sufficiently rein in the attention to the subject addressed to it. It not unfrequently happens, however, that the will, for want of a proper habit, has lost its power either wholly or in a very great degree, and cannot, with its utmost energy, exercise a due control over the attention; and it also happens in other cases, from a peculiarity of temperament, or morbid state of body, that the faculty of the attention itself is so feeble, that it is incapable of being steadily directed for more than a few minutes to any object of importance whatever, with all the effort of the will to give it such direction.

Sometimes the faculty of attention too feeble for long exertion.

Either case highly injurious to mental expansion, and invigoration of the other faculties.

The mind, under either of these conditions, is in a deplorable state for all the higher purposes of reflection and knowledge, for which by its nature it is intended; since it is upon the faculty of attention that every other faculty is dependent for its vigour and expansion; without it the perception exercises itself in vain; the memory can lay up no store of ideas; the judgement draw forth no comparisons; the imagination must become blighted and barren: and, where there is no attention whatever, the case must necessarily verge upon fatuity.

Attention weak in infancy; but like the other faculties capable of invigoration.

In early life the attention, like every other faculty of the mind, is weak and wandering, is often caught with difficulty, and rarely fixed upon any thing. Like every other faculty, however, it is capable of being strengthened and concentrated; and may be made to dwell upon almost any object proposed. But this is a work of time,

and forms one of the most important parts of education: and, in the course of this discipline, it should not be forgotten that the faculty of attention, when it first shows itself, is more readily arrested by some subjects than by others, and that it is hence of great moment to ascertain those subjects, and to select them in the first instance. The habit is what is chiefly wanted, and the quicker this is acquired, the more time we gain for transferring the same habit to other and perhaps more valuable purposes afterwards.

GEN. IV. SPEC. I. Aphelxia socors. Absence of mind. How this may be best accomplished.

This is a point seldom sufficiently considered in the course of education; and for want of such consideration, far more than half the time of many boys becomes an entire blank and is lost, and not a few are suffered to remain blockheads in the particular department to which their hours of study are directed, who might discover a considerable capacity and genius if the department were changed for one more adapted to their own taste, or, in other words, more attractive to their attention.

But the method too little attended to.

There is a very singular instance of habitual absence of mind related by Sir A. Crichton, in a young patient under the care of Dr. Pitcairn and himself, which, though some other circumstances appear to have combined with it, is ascribed considerably to the error of education we are now speaking of, that of not duly studying the peculiar bent of a mind in many respects singularly constituted, and drawing forth and strengthening the faculty of attention, which was in an especial degree weak and truant, by an employment of such objects and pursuits as were most alluring. This patient was a young gentleman of large fortune, who, till the age of twenty-one, and he does not seem to have been much more at the time of describing his case, had enjoyed a tolerable share of health, though of a delicate frame. In his disposition he was gentle and calm, but somewhat unsociable. His absence of mind was extreme, and he would sometimes willingly sit for a whole day without moving. Yet he had nothing of melancholy belonging to him; and it was easy to discover by his countenance that a multiplicity of

Singular example of habitual absence of mind; largely resulting from erroneous education.

GEN. IV. SPEC. I. Aphelxia socors. Absence of mind.

thoughts were constantly succeeding each other in his imagination, many of which were gay and cheerful; for he would heartily laugh at times, not with an unmeaning countenance, but evidently from mental merriment. He was occasionally so strangely inattentive that, when pushed by some want which he wished to express, if he had begun a sentence, he would suddenly stop short after getting half way through it, as though he had forgotten what else he had to say. Yet when his attention was roused, and he was induced to speak, he always expressed himself in good language and with much propriety; and if a question were proposed to him which required the exercise of judgement, and he could be made to attend to it, he judged correctly. It was with difficulty he could be made to take any exercise: but was at length prevailed upon to drive his curricle, in which Sir Alexander at times accompanied him. He at first could not be prevailed upon to go beyond half a mile: but in succeeding attempts he consented to go farther. He drove steadily, and when about to pass a carriage took pains to avoid it: but when at last he became familiarized with this exercise he would often relapse into thought, and allow the reins to hang loose in his hands. His ideas seemed to be for ever varying. When any one came across his mind which excited anger, the horses suffered for it; but the spirit they exhibited at such an unusual and unkind treatment made him soon desist, and re-excited his attention to his own safety. As soon as they were quieted, he would relapse into thought; if his ideas were melancholy, the horses were allowed to walk slow; if they were gay and cheerful, they were generally encouraged to go fast *.

Defect in this case not only in the mode of education but probably chiefly in a natural defect of the attention itself.

Something may in this case perhaps be owing, as supposed by Sir A. Crichton, to an error in the mode of education: but the chief defect seems to have been in the attentive faculty itself, and its labouring under a natural imbecility which no mode of education could entirely have removed. We have had frequent occasions to observe

* Of Mental Derangement, Vol. I. p. 281.

that the powers of the mind vary in different individuals as much as those of the body: and we have already offered examples of weak or diseased judgement, weak or diseased perception, and weak or vehement imagination. In the case before us, the mental disease seems to have been chiefly confined to the faculty of attention; and we shall presently have to notice a similar imbecility of the memory, and even of all the mental faculties conjointly.

Gen. IV. Spec. I. β Aphelxia socors. Absence of mind.

SPECIES II.

APHELXIA INTENTA.

Abstraction of Mind.

THE ATTENTION WOUND UP AND RIVETTED TO A PARTICULAR SUBJECT; WITH SYMPATHETIC EMOTION OF THE MUSCLES AND FEATURES CONNECTED WITH ITS GENERAL DRIFT.

In this species the faculty of attention, instead of being feeble, or contumacious to the will, is peculiarly strong, and vehemently excited, and acts in perfect co-operation with the will itself. And in many instances the sensorial energy maintained is so great, and demands so large a supply of sensorial power, as apparently to exhaust the entire stock, except indeed the reserve which is in almost all cases instinctively kept back for the use of the vital or involuntary organs. And hence, all the external senses remain in a state of torpor, as though drawn upon for their respective contributions of sensorial power in support of the predominant meditation: so that the eyes do not see, nor the ears hear, nor the flesh feel; and the muser may be spoken to, or conversation may take place around him, or he may even be struck upon the shoulders, without any knowledge of what is occurring.

Gen. IV. Spec. II. Faculty of attention here peculiarly strong; and in full co-operation with the will.

Sensorial energy so great as often to exhaust the entire stock, except what is kept in reserve for the vital organs:

Abstraction of mind may be produced by various cau-

GEN. IV. SPEC. II. Aphelxia intenta. Abstraction of mind.

ses, but the following are the chief, and form two distinct varieties:

α Aphelxia à pathemate. From some overwhelming passion.

β Aphelxia à studio. From intense study.

α A. intenta à pathemate. Revery from overwhelming passion. The individual sometimes as much lost to the world as in a profound sleep.

Of THE FIRST VARIETY we have already offered abundant examples in the two preceding genera: and especially in the cases of ungovernable joy or rapture, grief and despondency; under the influence of which the affected person is often as much lost to the world around him, as if he were in a profound sleep and dreaming; and only hears, sees, and feels the vivid train of ideas that possess themselves of his mind, and rule it as a captured citadel. To these alone the attention is directed; here it exhausts all its power, and the will concurs in the exhaustion; insomuch that the patient is said in some cases to have stared at the meridian sun without pain*; and in others to have been undisturbed by the discharge of a cannon†.

β A. intenta à studio. Revery from intense study.

We meet with like proofs of this variety of revery in many cases of intense study, and especially upon abstract subjects, as those of pure mathematics, in which all the reasoning and more serious faculties of the mind, as the perception, the memory, and the judgement, as well as the attention, are jointly called into action, and kept equally upon the stretch. Of the power of this variety of revery in rendering an individual torpid and almost dead to all around him, we have a decided instance in Archimedes at the time of his arrest. When the Roman army had at length taken Syracuse by stratagem, which the tactics of this consummate engineer prevented them from taking by force, he was shut up in his closet, and so intent on a geometrical demonstration, that he was equally insensible to the shouts of the victors, and the outcries of the vanquished. He was calmly drawing the lines of a diagram when a soldier abruptly entered his room, and clapt a sword to his throat. "Hold friend", said Archimedes, "one moment, and my demonstration will be

Instanced in Archimedes.

* Blumenb. Bibl. i. p. 736. † Darwin, Zoonom. III. i. ii. 2.

finished." The soldier, surprised at his unconcern at a time of such extreme peril, resolved to carry him before Marcellus; but as the philosopher put under his arm a small box full of spheres, dials, and other instruments, the soldier, conceiving the box to be filled with gold, could not resist the temptation, and killed him on the spot.

Gen. IV. Spec. II. β A. intenta à studio. Revery from intense study.

SPECIES III.

APHELXIA OTIOSA.

Brown-Study.

LEISURELY LISTLESSNESS; VOLUNTARY SURRENDER OF THE ATTENTION AND THE JUDGEMENT TO THE SPORTIVE VAGARIES OF THE IMAGINATION: QUIESCENT MUSCLES; IDLE GRAVITY OF COUNTENANCE.

Gen. IV. Spec. III. The attention here allowed by the will to be quiescent. Other reasons why the external senses are vacant in this species.

The attention is equally summoned into action, and dismissed at the command of the will. It is summoned in the last species; it is dismissed when a man voluntarily surrenders himself to ease and listlessness of mind; during which period, moreover, in consequence of this indulgence in general indolence, the external senses themselves unite in the mental quiescence, and a smaller portion of nervous fluid is probably secreted for the very reason that a smaller portion is demanded; and hence the active senses without are as vacant and unstrung as the active senses within, and as blunted to their respective stimuli. The first playful ideas that float over the fancy in this case take the lead, and the mind relaxes itself with their easy and sportive flow. It is the studium *inane* of Darwin*, who seems, however, to have in some degree misapplied the name, or to have confounded the aberration

Studium inane of Darwin: admirably described by Cowper.

* Zoonom. III. I. ii. 2. and again IV. II. iv. 2.

Gen. IV. Spec. III. Aphelxia otiosa. Brown-study.

with that of ecphronia or alusia. Cowper has admirably described it in the following verses:

Laugh ye who boast your more mercurial powers,
That never feel a stupor, know no pause,
Nor need one; I am conscious, and confess,
Fearless, a soul that does not always think.
Me, oft, has fancy ludicrous and wild,
Sooth'd with a waking dream of houses, towers,
Trees, churches, and strange visages, express'd
In the red cinders, while with poring eye
I gazed, myself creating what I saw.
Nor less amused have I quiescent watch'd
The sooty films that play upon the bars
Pendulous, and foreboding in the view
Of superstition, prophesying still,
Though still deceived, some stranger's near approach.
'Tis thus the understanding takes repose
In indolent vacuity of thought,
And sleeps, and is refresh'd. Meanwhile the face
Conceals the mood lethargic with a mask
Of deep deliberation, as the man
Were task'd to his full strength, absorb'd, and lost.

With the indolent such indulgence a disease: with the studious a wholesome relaxation:

In the indolent mind such indulgence is a disease, and, if not studiously watched and opposed, will easily become a habit. In the studious and active mind it is a wholesome relaxation; the sensory, in the correct language of the poet "sleeps and is refreshed", grows fertile beneath the salutary fallow and prepares itself for new harvests.

Especially where the attention is spurred on by a spirit of rivalry as well as by the will. Illustrated.

This is more particularly the case where, in conjunction with an attention "screwed up to the sticking place", and long continued there, a spirit of ardent emulation is at the same time stirring, and distracted between the hope and fear of gaining or losing a distinguished honour or reward. I have seen this repeatedly in young men who have been striving night and day, and week after week, for the first prizes of our English universities; some of whom have indeed succeeded, but with a hectic exhaustion that has been recovered from with great difficulty; while others, in the full prospect of success, have been compelled to relinquish the pursuit, and to degrade.

Even simple at-

Yet even without this conflict of feeling, where the

Gen. IV. Spec. III. Aphelxia otiosa. Brown-study.

attention alone has been too long directed to one or to a variety of recondite subjects without relaxation, the mind suffers considerably, and its powers become shaken and confused; of which we have an interesting example in the case of Mr. Spalding, a scholar of considerable eminence in Germany, as drawn by himself and communicated to the editors of the Psycological Magazine*. His attention, he tells us, had been long kept upon the stretch, and had been still more distracted by being continually shifted from one subject to another, when being called upon to write a receipt for money paid him on account of the poor, as soon as he had written the two first words, he found himself incapable of proceeding farther. He strove all he could, and strained his attention to the utmost, but to no purpose: he knew the characters he continued to make were not those he wished to write, but could not discover where the fault lay. He then desisted, and partly by broken words and syllables, and partly by gestures, made the person who waited for the receipt, understand that he should leave him. For about half an hour, a tumultuary disorder reigned in his senses, so that he was incapable of remarking any thing very particular, except that one series of ideas of a trifling nature, and confusedly intermixed, forced themselves involuntarily on his mind. At the same time his external senses continued perfect, and he saw and knew every thing around him. His speech, however, failed in the same manner as his power of writing, and he perceived that he spoke other words than those he intended. In less than an hour he recovered himself from this confusion, and felt nothing but a slight head-ache. On examining the receipt on which the aberration first betrayed itself, be found that, instead of the words "fifty dollars, being one half year's rate", he had written "fifty dollars, through the salvation of Bra—" the last word being left unfinished, and without his having the least recollection of what it was intended to be.

Attention long directed to mental pursuits occasionally produces confusion. Exemplified.

* Crichton's Inquiry into Mental Derangement, i. 237.

GENUS V.

PARONIRIA.

Sleep-disturbance.

THE VOLUNTARY ORGANS CONNECTED WITH THE PASSING TRAIN OF IDEAS, OVERPOWERED BY THE FORCE OF THE IMAGINATION DURING DREAMING, AND INVOLUNTARILY EXCITED TO THEIR NATURAL OR ACCUSTOMED ACTIONS; WHILE THE OTHER ORGANS REMAIN ASLEEP.

GEN. V. Origin of the generic term.

PARONIRIA, from παρὰ and ὄνειρον, signifies, "depraved, disturbed, or morbid, dreaming." So in Dioscorides*, δυσόνειρος, signifies, "tumultuosis et malis somniis molestans."

Essential distinction between ephialtes or night-mare, and the present species: hence erroneously united by Cullen.

In treating of the genus EPHIALTES, or night-mare†, I endeavoured to explain its course and nature; and hereby pointed out the essential distinction which exists between that disease and the present, and the impropriety of uniting the species which belong to both of them under one head, as Dr. Cullen has done in his genus oneirodynia, since, with the exception of their occurring in the night and during sleep, and therefore involuntarily, they have little or no connexion or resemblance in cause, symptoms, or even mode of cure.

The three following species are so clearly and decidedly of one and the same family, as to prevent all dispute in

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* Vol. II. p. 127. † Vol. I. Ord. II. Gen. V.

their present position. They are here, however, associated for the first time in a genus distinct from ephialtes.

1.	PARONIRIA AMBULANS.	SLEEP-WALKING.
2.	——— LOQUENS.	SLEEP-TALKING.
3.	——— SALAX.	NIGHT-POLLUTION.

Gen. V. Paroniria. Sleep-disturbance. These affections only to be fully understood by a knowledge of the physiology of sleep and dreaming. General hints subservient to a developement of these states of the body and mind.

The nature of these singular affections, and the means by which they are produced, have never yet been explained, and rarely, so far as I know, has any explanation been attempted. To understand them fully, it would be necessary for us to enter into a minute developement of the physiology of sleep and dreaming, which the limits of the present work will not allow. On some future occasion the author may, perhaps, follow it up into such a detail: but a few general remarks must suffice for the occasion before us.

In sleep, accompanied with dreaming, the faculties of the mind bear a pretty close parallel with those of the body as to the effect produced upon them. Some of them, as the will, the perception, the judgement, are in a state of general torpitude, like the voluntary organs of the body; while the memory and the imagination, like the vital or involuntary organs of the body, are in as high activity as ever. The sensory is hence as much crowded with ideas as at any time; but, destitute of a controlling power, they rush forward with a very considerable degree of irregularity, and would do so with the most unshapeable confusion, but that the habit of association still retains some degree of influence, and produces some degree of consonance and proportion in the midst of the wildest and most extravagant vagaries. And hence that infinite variety that takes place in the character of our dreams; and the greater regularity of some, and the greater irregularity of others. Hence a combination of thoughts or ideas sometimes only in a small degree incongruous, and at other times most frantic and heterogeneous; occasionally, indeed, so fearful and extravagant as to stimulate the external senses themselves into a sudden renewal of their functions, and consequently to break off abruptly the sleep into which they were thrown.

Many of the faculties of the mind as well as of the body at this time torpid: others in a state of activity. Hence the sensory crowded with ideas wanting the control of the will. Whence the ideas preserve some sort of catenation in dreaming: and are sometimes more and sometimes less regular. Dreaming ideas sometimes so vivid and wild as to stimulate the senses and rouse them abruptly from sleep.

GEN. V. Paroniria. Sleep-disturbances.

Now as the stimulant force of our ideas in dreaming, is often sufficient to rouse the external senses generally, and to awake us all of a sudden; it may be of such a kind, and just of such a strength, as to excite into their accustomed action the muscles of those organs or members only which are more immediately connected with the train of our dreams or incoherent thoughts; while every other organ may still remain torpid. And hence the muscles chiefly excited being those of speech, some persons talk, or the muscles chiefly excited being those of loco-motion, other persons walk, in their sleep, without being conscious, on their waking, of any such occurrence*. And by the same means we may easily account for the third species of the genus, or that which consists in dormant and involuntary salacity.

Sometimes only a single sense thus roused, and why.

Hence sleep-talking, sleep-walking or somnambulism,

and night pollution.

SPECIES I.

PARONIRIA AMBULANS.

Somnambulism. Sleep-walking.

THE MUSCLES OF LOCO-MOTION EXCITED INTO THEIR ACCUSTOMED ACTION BY THE FORCE OF THE IMAGINATION DURING DREAMING.

GEN. V. SPEC. I. In profound sleep all the powers of the mind and body, except the involuntary organs, in a state of torpitude.

IN profound sleep all the faculties of the mind, as well as all the voluntary organs of the body, are in a state of inactivity or torpitude, and the only organs that preserve their active tenour are the involuntary ones: so that in this state there is neither thought nor idea of any kind.

* Hennings, Von den Träumern und Nachtwandlern. Weimar 1784.
Horst, De Natura, Differentiis, et Causis eorum qui dormientes ambulant, &c. Leips. 1598. 8vo.

Gen. V. Spec. I. Paroniria ambulans. Somnambulism. Sleep-walking.

In dreaming some of the mental faculties only sleep or are torpid, while the others, like the involuntary organs of the body, continue wakeful or active: the somnolent faculties, we have already observed, are the will, the perception, and the judgement; the wakeful are the memory and the imagination.

In dreaming some of the mental faculties only sleep, as the will, the perception, and the judgement: while the imagination continues awake.

It would not be difficult, if we had time, to show why the involuntary organs do not require rest, or, in other words, become torpid like the voluntary; nor why the will and the judgement sooner associate in the general sleep of the external senses than the imagination, but this would carry us too far into the subject of animal physiology. There are two physiological remarks, however, which it is necessary to make in explanation of the morbid affection immediately before us. The first is, that sleep is a natural torpitude or inertness induced upon the organs of the body (with the exception of the involuntary) and the faculties of the mind by fatigue and exhaustion. And the next is that, in the production of sleep, it is not necessary that all these powers of body and mind should have been equally exposed to exhaustion: for, such is the effect of association and habit, that as soon as one faculty or organ feels fatigue, or becomes exhausted, the rest participate in the same condition, and the sleep or torpitude becomes common to the whole. It is hence the body is made drowsy by mental study, and the mind by corporeal labour; that muscular exercise wearies all the senses, and the exertion of the senses wearies the muscles: though there can be no doubt that the general tendency to sleep is also partly superinduced by the indirect exhaustion sustained by the organs or faculties that have been less employed, in consequence of the share of sensorial energy which, as from a common stock, they have themselves contributed towards the support of the more active and hence more debilitated powers.

Not difficult to know why the involuntary organs do not require rest: nor why the will and the judgement sooner become dormant than the imagination.

Sleep is a natural torpitude induced by fatigue and exhaustion.

The exhaustion of some of the powers of the body and mind only secondary, or the result of association with the rest.

Now it sometimes happens, either from disease or peculiarity of constitution, that all the external organs of sense do not associate in the general action that has taken

Some of the external organs of sense do not

GEN. V. SPEC. I. Paroniria ambulans. Somnambulism. Sleep-walking.

place, or yield alike to the general torpor to which it gives rise; and that the auditory, the optical, or some other sense, continues awake or in vigour, while all the rest are become inert; as it does also, that such particular sense, like the muscles of particular members, as observed a page or two above, is awoke or re-stimulated into action in the midst of the soundest sleep by the peculiar force and bent of the dream, while the rest still sleep on and are unaffected.

in every instance associate in the torpor or sleep of the rest: and sometimes some of them awake suddenly while the rest continue to sleep.

If the external organ of sense thus stimulated be that of sight, the dreamer may perceive objects around him, and be able to distinguish them: and if the tenour of the dreaming ideas should as powerfully operate upon the muscles of loco-motion, these also may be thrown into their accustomed state of action, and he may rise from his bed and make his way to whatever place the drift of his dream may direct him, with perfect ease, and free from danger. He will see more or less distinctly in proportion as the organ of sight is more or less awake: yet from the increased exhaustion, and of course, increased torpor of the other organs, in consequence of an increased demand of sensorial power from the common stock, to supply the action of the sense and muscles immediately engaged, every other sense will probably be thrown into a deeper sleep or torpor than if the whole had been quiescent. Hence the ears may not be roused even by a sound that might otherwise awake the sleeper. He may be insensible, not only to a slight touch, but a severe shaking of the limbs; and may even cough violently without being recalled from his dream. Having accomplished the object of his visionary pursuit, he may safely return, even over the most dangerous precipices, for he sees them distinctly, to his bed; and the organ of sight being now quite exhausted, or there being no longer any occasion for its use, it may once more associate in the general inactivity, and the dream take a new turn, and consist of a new combination of images.

If the wakeful sense be sight, the dreamer may perceive objects while asleep: and if the tenour of the dream act powerfully upon the locomotive muscles, he may walk, while the rest of the mind and body are dormant. The dormancy of the sleeping organs hereby increased, and why.

Irritability of habit often a predisponent cause.

Somnambulism occurs in many persons without any manifest predisponent cause, though it is generally con-

nected with a considerable irritability of habit. A morbid state of the stomach, where this habit exists, has very frequently proved an exciting cause: of which Dr. Yeates has given us an example in the case of a young gentleman of ten years of age related in the Medical Transactions *. He was of a delicate frame, often troubled with sickness; sometimes rejected his food undigested, after having lain two days in his stomach; his bowels were costive, and the stools were dark, offensive, and ill-formed. The sympathetic symptoms were frequent head-aches with occasional stupor, general coldness of the skin, and limpid urine. After being in bed for about two hours he was wont to start up suddenly as in a fright, dart rapidly into the middle of the chamber, or of the room adjoining, and walk about with much agitation. In this state he would run over quickly, but incorrectly, the transactions of the day; and he once attempted to spell a word which in the day time he had spelt wrong, in doing which he jumbled a number of letters together. When spoken to he would make a rational reply; and in one of his sleeping perambulations he called for an epitome of the History of England which he was in the habit of reading: the nurse brought him a book, but not the one he called for: on perceiving the difference he immediately threw it from him with great violence, and with expressions of anger and disappointment. On these occasions his eyes were wide open, though he did not seem conscious of seeing, nor of his situation at the time. It was, says Dr. Yeates, a perfect state of dream throughout, though partaking of the acts of the waking state, for he would avoid objects walking about the room. His face was quite pallid at the time.

GEN. V. SPEC. I. Paroniria ambulans. Somnambulism. Sleep-walking.

Morbid state of the stomach often an exciting cause.

Exemplified.

In this case much of the nervous hurry and agitation seems to have depended upon the debilitated and irritable state of the patient's frame. But where the affection proceeds from idiosyncrasy, or where there is no disturbance of the general health, the dreamer often proceeds

This case produced by nervous irritability, and hence the hurry of the sleep-walk: where no such irritability, the dreamer often pro-

* Vol. v. Art. xxviii. p. 444.

GEN. V. SPEC. I. Paroniria ambulans. Somnambulism. Sleep-walking.

far more coolly and collectedly: and the eye-lids, instead of being wide open as though staring, are often not more than half-unclosed, in some cases even less than this; which has given occasion to marvellous stories of somnambulists walking over dangerous places, or avoiding dangerous objects with their eyes completely shut all the time.

ceeds cooly and collectedly.

The eyes are more or less open: but from their winking, have sometimes been described as closed.

The remedial treatment it may be necessary to pursue we shall defer till we have briefly noticed the succeeding species, as the same treatment will apply to the whole.

Remedial treatment.

SPECIES II.

PARONIRIA LOQUENS.

Sleep-talking.

THE MUSCLES OF SPEECH EXCITED INTO THEIR ACCUSTOMED ACTION BY THE FORCE OF THE IMAGINATION DURING DREAMING.

GEN. V. SPEC. II. General principle explained under the preceding species.

IT is not necessary to dwell upon this species, as we have already explained the general principles of the inordinate action in the preceding pages. As the train of ideas which form the dream, when peculiarly lively and immediately connected with the organs of locomotion, may stimulate those organs into their accustomed activity, and thus give the dreamer a power of walking without consciousness; in like manner if a similar train of dreaming ideas be immediately connected with the organs of speech, these may also be equally influenced, and the dreamer be able to talk without being conscious of it, or having any recollection of such exertion when he awakes. And as, for reasons already specified, the organ of sight is sometimes, in the same way, roused from a state of sleep or torpitude to a state of wakefulness, while all the other external senses continue somnolent, or, from idiosyncrasy or some local or accidental cause, do not join in the general repose, but continue vigilant during its dominion—

Organs of speech stimulated by the train of dreaming ideas.

the organ of hearing may be roused in the same manner or exhibit the same anomaly; and, in this case, the dreamer, who, under the influence of the last species of affection, is able to see as well as to walk, is able, under the present, to hear as well as to speak. Examples, indeed, are given in which a by-stander obtaining some clue into the train of thoughts of which the dream is composed, has been able, not only to keep up an irregular conversation, but, by dexterous management and the artful assumption of a character which he finds introduced into the dream, to draw from the dreamer the profoundest secrets of his bosom, the dreaming ideas generally consisting of those on which the dreamer is most employed when awake, or which lie nearest his heart. I have never met with a case of this kind in my own practice, but it is given as a fact by various physiologists from the time of the Greeks and Romans to our own day.

Gen. V. Spec. II. Paroniria loquens. Sleep-talking. Organ of hearing sometimes associates in the wakefulness: whence the dreamer able to hear as well as to speak. Possible consequence of this.

SPECIES III.

PARONIRIA SALAX.

Night-pollution.

THE SEXUAL ORGANS EXCITED INTO VENEREAL ACTION BY THE FORCE OF THE IMAGINATION DURING DREAMING.

By Sauvages this affection is absurdly placed among the species of gonorrhœa, which, with great looseness of generic character is defined "passio cujus præcipuum symptoma est fluidi *puriformis* vel *seminiformis* effluxus stillatitius ex urethrâ". This definition is, indeed, wide enough to embrace the affection before us; but the absurdity consists in intermixing a natural discharge produced by the ordinary orgasm with morbid discharges, in which, in most cases, there is no orgasm whatever. Dr. Cullen, however, has continued to assign the same place and the same name to the present species, and this with

Gen. V. Spec. III. Species placed erroneously by Sauvages: and by Cullen.

Gen. V. Spec. III. Paroniria selax. Night-pollution.

still greater inconsistency; since he has struck out of his definition of gonorrhœa the epithet *seminiformis*, and confined it to a "fluxus humoris ex urethrâ *præter naturam*". So that he has been obliged to break his own bounds to introduce this natural flux into the place he has allotted it. And hence in his laying down the treatment of gonorrhœa in his Practice of Physic, he takes no notice of his gonorrhœa *dormientium*, as though feeling that it was altogether a different subject.

Physiology.

We have already observed that whatever part of the animal frame is immediately connected with the tenour of the somnolent vision, it is often roused, under particular circumstances, from the general sleep or torpitude in which it had participated, and becomes wakeful while every other part perseveres in the common repose. During sleep, moreover, our ideas are often more lively and operative than during wakefulness, and this on two accounts; first, because from the uninterrupted activity of the involuntary organs there is a more ready secretion of sensorial, as well as of most other fluids, in a state of perfect tranquillity; and next, because the ideas that predominate at the time are not broken in upon or weakened by exterior impressions and disturbances. It is, on this account, when the faculty of the judgement is stimulated into activity, instead of the ear or eye or the motory powers, a man has sometimes been able to solve difficulties in dreaming which proved too hard for him when vigilant. And to this effect Dr. Spurzheim: "somnambulists", says he, "even do things of which they are not capable in a state of watching; and some dreaming persons reason sometimes better than they do when awake*. A singular and amusing instance of this occurred not many years ago to a very excellent and justly celebrated friend of the author's, the Reverend William Jones of Nayland, Suffolk, who, among other branches of science, had deeply cultivated that of music, to which indeed he was passionately attached. He was a man of an irritable temperament, ardent

Ideas of dreaming more lively than in wakefulness, and why.

Interesting exemplification.

* Physiognomical System, p. 175. 8vo. Lond. 1815.

mind, and most active and brilliant imagination: and was hence prepared by nature for energetic and vivid ideas in his dreams. On one occasion during his sleep, he composed a very beautiful little ode of about six stanzas, and set the same to very agreeable music: the impression of which was so firmly fixed in his memory, that on rising in the morning he set down and copied from his recollection, both the music and the poetry.

GEN. V. SPEC. III. Paroniria salax. Night pollution.

It is hence not difficult to conceive that members so irritable as the sexual organs, when once the imagination leads energetically to the subject of concupiscence, should occasionally participate in the vision, and prove their sympathy by the result.

Hence sexual orgasm from dreaming ideas.

In some morbid states of the body, and especially when accompanied with local irritation, produced by inflammation, fibrous entony, the debility of old age, or a habit of vicious indulgence, a seminal flux has sometimes taken place without any connexion with the dream, and sometimes without either erection or turgescence; but this does not constitute the affection immediately before us; in which the stimulant power lies in the sensory and is propagated from that organ to those of generation.

Seminal flux sometimes during sleep from various causes, but this does not belong to the present species.

The Roman poet who so admirably unlocked the NATURE OF THINGS to his contemporaries, by following the footsteps of nature herself into most of her deepest recesses, directed his attention to this subject, among other physiological facts, and has elegantly explained it in the above manner; adducing, at the same time, another instance of the influence which the ideas of dreaming sometimes exercise over the organs connected with them, derived from the evacuation of the bladder which frequently takes place in children whose dream is directed to this natural want, and who image to themselves the ordinary vessel employed for such purpose, as at hand for their use:

The fact known to the Greeks and Romans, and elegantly explained by Lucretius.

with another effect of a similar kind.

Purei sæpe, lacum propter seu dolia curta,
Somno devinctei, credunt se extollere vestem;
Totius humorem saccatum corporis fundunt;
Quom Babylonica, magnifico splendore, rigantur.
Tum, quibus ætatis freta primitus insinuantur,
Semen ubi ipsa dies membris matura creavit,

Gen. V. Spec. III. Paroniria salax. Night pollution.

Conveniunt simulacra foris e corpore quoque,
Nuntiæ præclari voltûs, pulchrique coloris,
Qui ciet inritans loca turgida semine multo,
Ut, quasi transactis sæpe omnibus rebus, profundant,
Fluminis ingenteis fluctus, vestemque cruentent*.

Medical treatment. General principles to be attended to. Irritation, the exciting cause; which may be entonic or atonic.

In the medical treatment of all these species of paroniria we must never lose sight of this principle that, although in many instances their predisponent cause is a peculiar idiosyncrasy or habit, their exciting cause is, in all cases, general or local irritation; and that this irritation is of two very opposite kinds, which it also becomes us very particularly to attend to, namely, that of entony or excess of power, and that of atony or deficiency.

Remedial process when from entonic irritation.

It is to the former that Lucretius alludes, and which is by far the most common exciting cause: and where this exists, our first indication is to reduce the superabundant vigour by venesection, purgatives, laborious exercise, and a limitation to a plain and spare diet. While, on the contrary, where the exciting cause is debility, our attention should be directed to a tonic course of medicines, and particularly to those tonics which prove sedative at the same time that they strengthen the system. Several of the mineral acids are entitled to this character, and especially the sulphuric: and a still greater number of the vegetable bitters, and particularly the extracts of hop and lettuce. Dr. Cullen, indeed, as we have already observed, supposes a sedative power to exist in all the bitters, though not equally in all. How far the Prussic acid might be employed for this purpose I cannot say from personal practice: but if it really consist, as it is supposed to do, of the sedative principle of the laurocerasus or bitter almonds, it may possibly prove a very serviceable remedy.

When from atonic irritation.

Undue accumulation of power to be prevented. Hence hard mattrass:

Our next object of attention should be to prevent all undue accumulation of the sensorial principle during sleep, and this may be accomplished in two very distinct and opposite ways. The first is the use of a hard mattrass, with so small a covering of clothing that the sleep

* De Rer. Nat. iv. 1020.

may be somewhat less sound than ordinary, and consequently more easily broken off. For the force of our dreaming ideas will always be in proportion to a certain degree of soundness in our sleep: I say a certain degree, because if the fatigue or exhaustion, or torpitude, be extreme, the sleep will become profound or lethargic, all the faculties of the mind will participate in it, and, as already observed, there will be no ideas or dreaming whatever.

GEN. V. SPEC. III. Paroniria salax. Night-pollution. Treatment.

and narcotics.

And hence the second mode of preventing an accumulation of sensorial, and especially of irritable power, will be the employment of narcotics till the morbid habit is destroyed; for these, when carried to a sufficient extent, diminish vascular action, and consequently take off sense and motion so completely as to extinguish the vital principle altogether, and hence not only to suppress all power of dreaming, but even life itself.

Illustration.

I had lately under my care for the last species, a very modest and regular young man, who was a student of Christ's College, Cambridge, and was alarmed at the idea of having his constitution undermined by its continuance. He was rapidly growing, of slender make, and of a relaxed habit. Nitre, which has been so often recommended as a sedative, in this case did no service: but under the use of a pill composed of one grain of opium and five of camphor taken nightly, and draughts of myrrh, and infusion of columbo acidulated with sulphuric acid, he lost the tendency in a fortnight, after having been subject to the discharge for many weeks. His bowels were kept at the same time constantly stimulated by the pill of aloes and myrrh: and the cold-bath formed a part of his regimen. Pagani and De Cazelles* have recommended electricity; but the author has never tried its effects, having uniformly succeeded without it.

Where a secondary affection, the primary disease must be principally attended to.

Where either of these species, but particularly the two former, are connected with a morbid state of the stomach, the disease must be attacked in this quarter, as it was with great judgement and a favourable issue in the case quoted from Dr. Yeates.

* Journ. de Médicine, Tom. LXXIV.

GENUS VI.

MÓRIA.

Fatuity.

DEFECT OR HEBETUDE OF THE UNDERSTANDING.

GEN. VI. Origin and use of the generic term.

MÓRIA is a Greek term from *μώρος*, "stultus, fatuus." It is here limited to its proper signification. Vogel employs it, though with a different termination (morosis instead of mória) in the same or very nearly the same sense; but he is almost the only medical writer that does so. By Nenter and Sauvages mória is used to denote melancholia *complacens* (self-complacent melancholy), while by others it is employed synonymously with anœa or idiotism. To complete the confusion, morosis (amentia *Morosis*) is the name given by Sauvages to mental imbecility (mória *imbecillis*), though, as already observed, he had just before used mória in the sense of melancholy. It is precisely in the signification now offered that the term is employed by Erasmus, in his celebrated treatise entitled "*Moriæ Encomium*" or "The Praise of Folly," which he dedicated to Sir Thomas More.

Employed hitherto in different significations: with much confusion to medical nomenclature.

Derivatives from the common root.

Mora, *moror*, *morosus*, *morositas*, are derived from this common source; and uniformly import "wayward-ness, tardiness, dulness, impediment;" though the lexicographers, not having hit upon the right path, have wandered in different directions without being able to satisfy themselves. In Sauvages and Sagar, *morositates* are in fact "*corporeæ moriæ*," defects or hebetudes of the bodily faculties.

How distinguished from the preceding genera.

The preceding genera are founded upon a morbid perversion or misrule, a diminished or excessive excitement of one or more of the powers of the mind operating upon the mind itself or upon the body. The present is founded upon a natural or permanent dulness, or hebetude of

one or more of the same powers, producing a deficiency in the understanding, which, however, may be regarded as the general frame or constitution of the mind, in the same manner as the body is the general frame or constitution of the organs which form its separate parts. Mória thus explained, will be found, as a genus, to embrace the two following species:— Gen. VI. Mória. Fatuity.

1.	MÓRIA IMBECILLIS.	IMBECILITY.
2.	——— DEMENS.	IRRATIONALITY.

SPECIES I.

MÓRIA IMBECILLIS.

Mental Imbecility.

THE DEFECT OR HEBETUDE PARTIAL, OR CONFINED TO PARTICULAR FACULTIES OF THE UNDERSTANDING.

We have already observed that all the faculties of the mind are as subject to a diseased disturbance as the organs of the body: and hence all of them are liable to be affected by the present species. The whole of the varieties, therefore, under which mental imbecility is capable of being contemplated might form an extensive list: but it will be sufficient to confine ourselves to the four following: Gen. VI. Spec. I. General remarks.

α Stupiditas. Stupidity.	Dulness and indocility of the apprehension; torpitude and poverty of the imagination.
β Amnesia. Forgetfulness.	Feebleness or failure of the memory.
γ Credulitas. Credulity.	Weakness and undue pliancy of the judgement, with a facility of being duped.

GEN. VI. SPEC. I. δ Inconstantia. Fickleness. — Instability and irresolution of the will.

a M. imbecillis Stupiditas. Stupidity.

In STUPIDITY there is generally a dulness in several of the faculties besides the apprehension and the imagination; and sometimes, perhaps, in all of them: but then it originates in these, and the rest are for the most part only secondarily dull, as not being furnished with a sufficient number of ideas or in sufficient rapidity for their use. Thus the judgement of a heavy or stupid man is often as sound in itself as that of a man of capacious comprehension; and more so, perhaps, for a reason we have already observed under alusia *facetosa*, or crack-brained wit, than that of a man of facetious quickness of parts: but the heavy man requires time and patience to collect his ideas, and compare them with each other; for they are neither furnished to him in a free current from his memory or his imagination, nor does he readily apprehend or lay hold of them as they are offered from external objects to his perception, which, in effect, is little more than a synonym for the apprehension—the apprehension being the perception in a state of exercise, or exertion. There is hence a material difference in physiology, though, perhaps little in practice, between ignorance and stupidity. The former is want of knowledge from want of its ordinary means; and by the use of such means may, perhaps, soon be gotten the better of: the latter is dulness in the use of such knowledge as by ordinary means has been acquired and exists in the sensory, though in a state of stagnation or dormancy. Mr. Locke has made the same distinction, though he has justly enough observed that, for all practical purposes the man of stupidity had almost as well be without his knowledge as with it. "He," says this admirable writer, "who, through this default in his memory, has not the ideas that are really preserved there, ready at hand when need and occasion call for them, were almost as good be without them quite, since they serve him to little purpose. The dull man, who loses the opportunity whilst he is seeking in his mind for those

Generally other faculties besides the imagination and apprehension obtuse in this variety.

Yet the judgement often sound though slow: and even sounder than in facetious quickness.

Explained.

Apprehension, its relation to the perception.

Difference between stupidity and ignorance.

Exemplified from Locke.

ideas that should serve his turn, is not much more happy in his knowledge than one that is perfectly ignorant. It is the business of the memory to furnish those ideas which it has present occasion for, and in the having them ready at hand on all occasions, consists that which we call invention, fancy, and quickness of parts"*.

GEN. VI. SPEC. I. a M. imbecillis Stupiditas. Stupidity.

Stupidity or dulness of apprehension may be idiopathic; but it may also proceed from want of education, or education irregularly conducted; for all the faculties of the mind, like the muscles of the body, become invigorated and are rendered more alert by a well disciplined exercise. And hence stupidity is a natural result of idleness; as it is more particularly of idleness in conjunction with an undue use of wine and fermented liquors, which have a proverbial power of besotting the understanding. It is also produced temporarily or habitually by various corporeal diseases; as hemicrania, chronic inflammation or dropsy of the head, gout in the head, and sometimes repelled cutaneous eruptions or habitual discharges.

Causes of stupidity, some idiopathic affection.

Want of proper education.

Local or other disease.

Stupidity, like wit, is propagable; and hence we frequently see it run from one generation to another; and not unfrequently it forms a distinctive mark in the mental character of districts or nations: in many cases, indeed, where they border closely on each other. The Dutch have at least as much solid sense as their neighbours the French; but they are certainly less quick; or, in other words, they have a duller fancy and apprehension. Bœotia in respect to chorography was merely separated from Attica by Mount Cithæron; but in respect to genius the two countries were as far apart as the poles. So in the Pacific Ocean, the natives of Otaheite learn every thing with facility; the natives of New South Wales have no aptitude, and learn nothing. The residence of a few missionaries amongst them for a short term of years, has nearly civilised the former; the actual possession of the country for a far longer period, by a British public and a British government, with a perpetual intercourse, and the kindest

Is propagable.

Illustrated.

* Essay concerning Hum. Underst. B. II. Ch. X. Sect. 8.

Gen. VI. Spec. I.

encouragement, has made little or no impression upon the latter.

β M. imbecillis Amnesia. Forgetfulness. Oblivion.

A FAILURE OF MEMORY, however, which forms the SECOND SPECIES of mental imbecility before us, is a far severer evil than dulness of perception with poverty of imagination: for as all the sources of information to which we have been privy cannot be always immediately before us to excite the perception, we must necessarily draw upon our recollection for those which are not so, and whose ideas or impressions we stand in need of. And hence the memory is the great storehouse of intelligence; and in one sense at least the Platonic doctrine is universally true that "all knowledge is reminiscence". There are some minds in whom this faculty has been peculiarly retentive, as that of Newton, who made it answer the purpose of intuition; and of Pascal, who is said never to have forgotten, till his health failed him, any thing he had ever done, read, or thought of.

A worse evil than stupidity.

The memory in some persons strongly retentive.

Newton.

Pascal.

Retention of memory, how differs from quickness.

Retention of memory, however, is a different property from that of quickness. They may and often do co-exist; but they are also found separate: for there are many persons who can well catch hold of an entire song, an entire sermon, or a series of speeches in parliament, and can recite them almost, if not altogether, verbatim immediately afterwards, but who lose all recollection of them in a day or two: while there are others who are obliged to pause over the subject submitted to them, or to have it repeated for several times before they can get it by heart, yet who, when they have once fixed it in the memory, retain it as long as they live. Mr. W. Woodfall, the celebrated reporter of the parliamentary debates, was an instance of the former of these talents, in regard to his powers of apprehension; the well-known Jedediah Buxton of the latter: though it should be remarked that Mr. Woodfall retained with as much ease as he first fixed speeches in his memory.

Examples.

Failure of memory shows itself in various ways.

+ Failure of memory takes place in a variety of ways. It is sometimes general, and extends to every subject; but it is frequently far more manifest on some subjects

than on others. Salmuth mentions a case in which the affected person had forgotten to pronounce words, but could nevertheless write them*. Mr. J. Hunter was suddenly attacked with a singular affection of this kind in December 1789, when on a visit at the house of a friend in town. "He did not know in what part of the house he was, nor even the name of the street when told it, nor where his own house was: he had not a conception of any thing existing beyond the room he was in, and yet was perfectly conscious of the loss of memory. He was sensible of impressions of all kinds from the senses, and therefore looked out of the window, although rather dark, to see if he could be made sensible of the situation of the house. The loss of memory gradually went off, and in less than half an hour his memory was perfectly recovered"†. This might possibly be connected with a gouty habit to which Mr. Hunter was subject, though not at this time labouring under a paroxysm. The late bishop of Landaff, Dr. Watson, gives a singular case of partial amnesia in his father, the result of an apoplectic attack. "I have heard him ask twenty times a-day," says Dr. Watson, "'what is the name of the lad that is at college?' (my elder brother); and yet he was able to repeat, without a blunder, hundreds of lines out of classic authors"‡. And hence, there is no reason for discrediting the story of a German statesman, a Mr. Von B. related in the seventh volume of the Psychological Magazine, who having called at a gentleman's house, the servants of which did not know him, was under the necessity of giving in his name; but unfortunately at that moment he had forgotten it, and excited no small degree of laughter by turning round to a friend who accompanied him, and saying, with great earnestness, "pray tell me who I am, for I cannot recollect."

Gen. VI. Spec. I. β M. imbecillis Amnesia. Forgetfulness. Oblivion.

In forgetfulness of words.

Forgetfulness of family names.

Forgetfulness of a man's own name.

From severe suffering of the head in many fevers a

General forgetfulness often produced by fevers

* Cent. II. Obs. 41.

† Sir Everard Home's Life prefixed to his Treatise on the Blood, Inflammation, &c. 4to. 1794.

‡ Anecdotes of the Life of Richard Watson, D.D., Bishop of Landaff.

GEN. VI. SPEC. I. β M. imbecillis Amnesia. Forgetfulness. Oblivion. Example from Thucydides.

great inroad is frequently made upon the memory, and it is long before the convalescent can rightly put together all the ideas of his past life. Such was one of the effects of the plague at Athens, as we learn from Thucydides, τοὺς δὲ καὶ λήθη ἐλάμβανε παραυτίκα ἀναστάντας τῶν πάντων ὁμοίως· καὶ ἠγνόησαν σφᾶς τε αὐτοὺς, καὶ τοὺς ἐπιτηδείους: "and many, on recovery, still experienced such an extraordinary oblivion of all things that they knew neither themselves nor their friends".

Singular case of forgetfulness of a spoken language and recovery of one disused.

A few years ago a man with a brain-fever was taken into St. Thomas's Hospital, who as he grew better spoke to his attendants, but in a language they did not understand. A Welsh milk-woman, going by accident into the ward, heard him, answered him and conversed with him. It was then found that the patient was by birth a Welshman, but had left his native land in his youth, forgotten his native dialect, and used English for the last thirty years. Yet in consequence of this fever he had now forgotten the English tongue, and suddenly recovered the Welsh.

Further illustration.

Boerhaave, however, gives a still more extraordinary instance of oblivion in the case of a Spanish tragic author who had composed many excellent pieces, but so completely lost his memory in consequence of an acute fever, that he forgot not only the languages he had formerly learnt, but even the alphabet: and was hence under the necessity of beginning to read again. His own poems and compositions were shown to him, but he could not be persuaded that they were his production. Afterwards, however, he began once more to compose verses; which had so striking a resemblance to his former writings that he at length became convinced of his being the author of them *.

Impaired by numerous causes.

The memory may also be prematurely impaired (for in age it is a natural defect) by various other causes. Idleness or inattention will do it, as in the case of stupidity, as will also an over-exertion of the faculty, injuries of the head, rheumatic, or gouty pains in it, dyspeptic maladies,

* Prælect. Acad. in Justit. Med. ex Edit. Hallen. Tom. IV. p. 468. See also Cricht. Of Ment. Derangement. I. 370.

various narcotic poisons, prostrating hæmorrhages, or want of food, and libidinous indulgence *.

GEN. VI. SPEC. I. β M. imbecillis Amnesia. Forgetfulness. Oblivion.

Dependent upon this last cause Sir Alexander Crichton has given a single example of what may be called perverse oblivion in an old attorney, nearly seventy years of age, who, though married to a lady much younger than himself, kept a mistress whom he visited every night. He was suddenly seized with great prostration of strength, giddiness, and forgetfulness; but the last was of a peculiar kind and consisted in the mistaking the name of one thing for that of another; so that if he wanted bread he would ask for his boots, and though enraged at the latter being brought to him, he would still call out for his boots or shoes. In like manner if he wanted a tumbler to drink out of, it was a thousand to one but he would call for the ordinary chamber utensil, or, if this were wanted, he would call for a tumbler or a dish. This gentleman, however, was cured of the complaint by large doses of valerian and other cardiacs.

Singular instance from libidinous indulgence.

γ M. imbecillis Credulitas. Credulity.

IN CREDULITY, constituting the THIRD VARIETY of the imbecility before us, the faculty of the judgement is the chief seat of disorder. It is unquestionably more generally to be found among ignorant people than those whose minds are well stored with the elements of knowledge; but, as we also frequently perceive among the former a most obstinate and wilful incredulity, and among the latter extraordinary proofs of the present failing, it cannot be regarded as altogether an effect of a general want of ideas: it is in reality a hebetude or indolence of the judgement or power of ratiocination, which induces a man to take things upon trust and allows others to think for him, not for want of ideas, but for want of comparing one idea with another, those of probability with those of improbability, and fairly striking the balance; in consequence of which, under the influence of this mental oscitancy, he readily yields himself, body and soul, to the opinions of others, and follows such opinions blindfold; as those who

Found both among the ignorant and well informed, but chiefly among the former.

Among the latter a voluntary evil.

* Dissert. de Memoriæ Læsione ex nimis Vener. Usu. Alt. 1695.

GEN. VI. SPEC. I. γ M. imbecillis Credulitas. Credulity.

shut their eyes must be led by those that see, or else fall into the ditch.

From being voluntary may become a chronic disease.

This is voluntary credulity; yet many have been so long accustomed to it, that it has all the effect of a chronic disease, and is as difficult of cure as the most obstinate.

More generally idiopathic.

There are some men, however, whose judgement is more morbidly dull by nature, than from inactivity or a neglected education; or may possibly have been rendered so by intemperance; who are deficient in natural skill to use the evidence they possess of probabilities; and being incapable of carrying on a train of consequences in their heads, and of weighing exactly the preponderance of contrary proofs and testimonies, are easily misled, and rendered the dupes of every plausible sophist, and the playthings of every impostor. "There are some men," says Mr. Locke, "of one, some but of two syllogisms, and no more; and others that can but advance one step further. These cannot always discern that side on which the strongest proofs lie; cannot constantly follow that which in itself is the more probable opinion."*

δ M. imbecillis Inconstantia. Inconstancy. Ordinary cause.

There is another imbecility we have noticed, as strangely interfering with the integrity of the understanding; and that is FICKLENESS, or an instability and irresolution of the will. The faculty of the will requires not only to be directed aright in infant life, but to be fortified and strengthened by a course of exercise and discipline as much as any faculty whatever. This we may say as physiologists; but as moralists we may speak a bolder language, and maintain that it demands the spur and trammels of education even more than all the other faculties put together, since it is designed by nature to be the governing power and to exercise an absolute sway over the rest, even over the desire itself, by which, however, it is moved in all ordinary cases.

Elucidation.

A child whose inclinations have never been reined in, is perpetually letting the will and the desire run together, and changing both every moment; and if this disposi-

* Human Understand. Book IV. Ch. xix. § 5.

tion be suffered to grow into a habit, it will produce the fickleness of which we are now speaking, and form a character on which there can be no reliance; whose determination of to-morrow cannot be known from that of to-day: because the will itself, void of all firmness or resolution, is the sport of every transient incident, every interposing uneasiness or pleasure: and which, hence, becomes its own torment still more than the torment of those around it; since being ever instigated by the feelings of the moment, and sacrificing the future to the present, it often purchases a fleeting gratification, and of subordinate value, at an expense of permanent and substantial happiness.

GEN. VI. SPEC. I. } M. imbecillis Inconstantia. Inconstancy.

Upon the REMEDIAL PROCESS for the mental infirmities which appertain to this species, little is to be said in a work of medical instruction. So far as they relate to corporeal causes, and we have pointed out various causes of this kind that apply to several of them, those causes should be minutely inquired into, and, as far as possible, removed or palliated: and whatever will tend to invigorate the entire frame, as the metallic tonics *, regularity of diet, sleep, exercise, and, above all, cold bathing † must supply the rest. To the arms of mental and moral instruction, however, the sickly understanding must be chiefly entrusted; and, where these are properly applied, the mind may often be rendered sufficiently sound for all the ordinary purposes of life, and even for some of its elegancies; though it may never be distinguished for terseness, brilliancy, or comprehension. The leading aim should be to lay hold of the strongest faculty, and to make the direct cultivation of this an indirect cultivation of the rest.

Remedial process for the diseases of Mória imbecillis or imbecility. Medical.

Moral.

* Agricola, commut. in Poppium. Tr. de Argento, p. 186.

† Dauter, Von Gebrauche des Kalten Wassers.

SPECIES II.

MÓRIA DEMENS.

Witlessness. Irrationality.

DEFECT OR HEBETUDE OF ALL THE FACULTIES OF THE UNDERSTANDING.

GEN. VI. SPEC. II. Of this species we have three varieties that seem to require a distinct notice:—

α Stultitia.
Silliness. Folly.
Shallow knowledge, vacant countenance, light frivolous fancy: for the most part with good nature; sometimes with obstinacy.

β Lerema.
Dotage. Superannuation.
Impotence of body as well as of mind from premature old age; childish desires and pursuits; drawling speech or garrulous babble, composed of ideas for the most part associated by previous habit.

γ Anœa.
Idiotism.
General obliteration of the mental powers and affections; paucity or destitution of ideas; obtuse sensibility; vacant countenance; imperfect or broken articulation; with occasionally transient and unmeaning gusts of passion.

Gen. VI. Spec. II. Mória demens. Witlessness. Irrationality.

The difference between the understanding of some men and that of others is extreme; yet it is not every minute variation from the standard of soundness that constitutes a disease whether in mind or body; but as soon as, in either case, such variation becomes a marked or serious evil it is entitled to this name; and, in the subject before us, falls within the range of the FIRST of the preceding varieties.

α M. demens Stultitia. Silliness. Folly. Generally a natural infirmity: often capable of palliation by judicious management.

This, which is what we ordinarily denominate SILLINESS is generally a natural infirmity, and in some families appears to be hereditary. A well directed education, however, may do much, as there is commonly some faculty that will bear cultivating better than the rest, and which points to the particular line to which the study of the individual should be especially addressed, and in which he may appear respectable. He may have imitative powers, and make a good painter or engraver, though he may not have creative powers, and make a good orator or poet. He may be fond of arithmetic, and fitted for trade and accounts, though he may not possess a taste for scientific subtleties, or be well calculated for any one of the professions.

β M. demens Lerema. Dotage. Superannuation. Causes. Description. Further illustrated from Pinel.

DOTAGE, when a mere result of old age, is hardly to be regarded as a disease, and is rarely accompanied by any effervescence of the passions. But it often appears prematurely, and is especially accelerated by excessive indulgence in corporeal pleasures; sometimes by violent mental emotion, as anger, or by long continued grief. Under the two former of these causes, there is often combined with it an incessant garrulity, a very high degree of passionate, but unmeaning effervescence, and puerile mobility. M. Pinel gives a striking example of this in a person whom he had frequently an opportunity of seeing. "His motions," says he, "his ideas, his broken sentences, his confused and momentary glimpses of mental feeling appeared to present a perfect image of chaos. He came up to me, looked at me, and overwhelmed me with a torrent of words without order or connexion. In a moment he turned to another person, whom, in rotation, he deafened with his unmeaning babble, or threatened with an

GEN. VI. SPEC. II. β M. demens Lærema. Dotage. Superannuation.

evanescent look of anger; but as incapable of determined and continued excitement of the feelings as of a just connexion of ideas, his emotions were the effect of a momentary effervescence, which was immediately succeeded by a calm. If he went into a room, he quickly displaced or overturned the furniture, without manifesting any direct intention. Scarcely could one look off before he would be at a considerable distance, exercising his versatile fondness for bustle in some other way. He was quiet only when food was presented to him. Even at night he rested but for a few moments." A strong desire of food, however, is by no means common under this species: it is perhaps most frequently met with in the dotage of old age; but in premature lerema we often find the appetite entirely banished, and a resistance to food of all kind when offered.

γ M. demens Anœa. Idiotism.

IDIOTISM, the THIRD VARIETY, is often the result, as we have already observed, of an original misformation of the cranium, sometimes in respect to thickness, more frequently in respect to shape; by both which the internal cavity, and consequently the capacity of the brain, is unduly diminished.

Often from morbid structure of the cranium.

At other times from internal causes.

The internal causes are habitual inebriety, excessive and enervating pleasures, violent agitation of the passions, whether pleasureable or painful, as overwhelming joy, startling terror, deep and protracted grief, or furious anger; tumours within the cavity of the cranium; injudicious management in ecphronia, and especially an excessive use of the lancet. To which some add suppressed discharges or eruptions, as blennorrhœa *, and itch †, and the drinking of human blood ‡.

More frequently congenital.

Idiotism, however, is more frequently congenital, than accidental; and it is melancholy to think that it is also sometimes hereditary. Of those who are idiots from birth many, moreover, are sooner or later afflicted with palsy or epilepsy, or both; a clear proof of the existence of some organic affection of the brain or nerves: the former being

Often united with palsy or epilepsy.

* Ehrmann, Beyträge zur anfklärung des Trippers.

† Wantner, Journ. de Médicine, Tom. LVI. p. 115.

‡ Sennert, Institut. cum Paralis. Vitel. 1667. 4to. Zacut. Lusit. Prax. Med. Adm. I. III. Obs. 79.

sometimes partial, and confined to the face only or extending down one of the sides. Idiots rarely attain old age; they seldom exceed the term of thirty years; and when paralysis or epilepsy are concomitants, they usually die at a much earlier period. Gen. VI. Spec. II. γ M. demens Ancea. Idiotism.

In idiotism the ideas of sensation and of reflection appear to be equally inaccurate. There is a vague, unsteady, wandering eye, seldom fixed for any length of time upon any one object; a stupid expression of countenance in which no sign of intelligence is pourtrayed; a gaping mouth from which the saliva flows constantly: a perpetual rolling and tossing of the head; no memory, no language, no reason. The idiot has all the animal instincts, and some of the passions. Of the last, joy, fear, and anger, are those with which he is most frequently affected, but these are of a very limited kind. His joy is unmeaning mirth; his fear, a transient qualm; his anger, a momentary fit of violence. The toys of children, and the gratification of hunger and thirst, are his only pleasures: bodily pain or fear of bodily pain his only distresses. It is said that idiots have sometimes shown a strong sexual appetite: but this is not common, for they rarely seem to attend to any distinction of sex*. Description.

The treatment, where medical assistance can be of any use, must chiefly depend upon the nature of the cause. Blistering and internal stimulants to increase the action of the nervous system, and augment the habitual torpitude of the abdominal viscera which are usually affected in this malady, offer the fairest chance of advantage. Accidental commotion of the brain, an occasional cause, has occasionally also proved serviceable, as has likewise a fracture of the cranium. Hence too fevers have relieved the disease; and active paroxysms of mania have proved a complete cure; and I once knew a cure effected in a lad who fell from the first floor of a house into the street; the torpitude or obstruction, or whatever was the cause, being hereby removed. Treatment.

* Crichton, Of Mental Derangement, i. p. 314.

CLASS IV.

NEUROTICA.

ORDER II.

ÆSTHETICA.

Diseases affecting the Sensation.

DULNESS, DEPRAVATION, OR ABOLITION OF ONE OR MORE OF THE ORGANS OF CORPOREAL SENSE.

CLASS IV. ORDER II.

Various significations of the ordinal term and its compounds.

ÆSTHETICA is derived from *αἰσθάνομαι*, "sentio, et, propriè, sensû corporis". The term applies, however, to all the external senses, and, in the language of Galen, peculiarly expresses *ἡ αἰσθητικὴ δύναμις*, "the power or faculty of sensation". It must, also, be admitted that it is occasionally applied to mental sensation, as in Isocrates to Demonicus, *οὕτω τὴν ἐκείνων γνώμην αἰσθήσῃ*, "thus will you *feel* their mind or inclination".

How used by Galen:

by Isocrates:

The term has hence been used in different significations by different medical writers. It has seldom, indeed, been applied to the mind, but has strangely varied between expressing sensation generally, and the sense of touch alone.

by Young:

In Dr. Young's excellent volume on Medical Literature it runs for the most part parallel with its meaning in the present work, and imports diseased action of all the corporeal senses; but, with this appropriation of the term, there seems to be an incorrectness in applying it, as the same author does immediately afterwards, to *defective memory*, which he names dysæsthesia *interna*, and ranks in the same list or genus with defect of the external senses.

Class IV. Order II. Æsthética. Diseases affecting the sensation.

Sauvages and Sagar.

Sauvages, and after him Sagar and Cullen, have applied *dysæsthesiæ* to a morbid state of the corporeal senses generally; whence *anæsthesiæ* should in their hands have expressed atony or total inactivity of these senses generally. But while *dysæsthesiæ* extends to all the senses, *anæsthesia* is by the same writers limited to the single sense of touch; with no small perplexity to the young student.

In the Physiological Proem to the present class we have taken so full a survey of the connexion which exists between the brain and the corporeal senses by means of the nerves, that it is not necessary to say more upon the subject at present: and I shall only therefore further observe in these preliminary remarks that where one of the senses is deficient, and especially where naturally deficient, the rest have very frequently been found in a more than ordinary degree of vigour and acuteness; as though the sensorial power were primarily derived from a common source, and the proportion belonging to the organ, whose outlet is invalid, were distributed among the other organs*.

Where one sense deficient, others often peculiarly vigorous.

Order of the ensuing genera.

The genera, under the order before us, are taken in a regular series from the corporeal senses themselves in a state of morbid action, and are in number six: of which the first five are derived from the five external senses, and the last from a diseased state of particular branches of the nerves distributed over the frame generally for the common and pleasureable feeling of health in the different organs through which they are dispersed.

I.	PAROPSIS.	MORBID SIGHT.
II.	PARACUSIS.	——— HEARING.
III.	PAROSMIS.	——— SMELL.
IV.	PARAGUSIS.	——— TASTE.
V.	PARAPSIS.	——— TOUCH.
VI.	NEURALGIA.	NERVE-ACHE.

* Trinckhusius, De Cæcis sapientiâ ac eruditione, claris mirisque cæcorum quorundam actionibus. Gerræ, 1762. Meckren. Observ. Med. Chir. cap. xx.

GENUS I.

PAROPSIS.

Morbi Sight.

SENSE OF SIGHT VITIATED OR LOST.

GEN. I. Origin of the generic term.

PAROPSIS is literally "diseased or depraved vision," from παρὰ, *male*, and ὄψις, *visus*; as paracusis, "diseased or depraved hearing," from παρὰ, and ἀκουή.

Diseases of the eyes unnecessarily multiplied.

The ophthalmic monographists, by making every variety of affection a distinct disease, have most unmercifully enlarged the list under this genus*. To say nothing of Campiani, Taylor has in this manner mustered them at two hundred and forty three†, while Plenck has contrived to multiply them to nearly six hundred‡. Upon a comprehensive view of the subject, it will, I think, be found that this formidable number may be reduced to the twelve species following:

1.	PAROPSIS LUCIFUGA.	NIGHT-SIGHT.
2.	——— NOCTIFUGA.	DAY-SIGHT.
3.	——— LONGINQUA.	LONG-SIGHT.
4.	——— PROPINQUA.	SHORT-SIGHT.
5.	——— LATERALIS.	SKUE-SIGHT.
6.	——— ILLUSORIA.	FALSE-SIGHT.
7.	——— CALIGO.	OPAKE CORNEA.
8.	——— GLAUCOSIS.	HUMORAL OPACITY.
9.	——— CATARRACTA.	CATARACT.
10.	——— SYNIZESIS.	CLOSED PUPIL.
11.	——— AMAUROSIS.	DROP SERENE.
12.	——— STRABISMUS.	SQUINTING.

* Campiani, Raggionamenti sopra tutti i Mali degli Occhi descritti, &c. Genoa, 1759.

† Catalogue of two hundred and forty three diseases of the Eyes. Edin. Vol. 1749.

‡ Doctrina de Morbis Oculorum. 8vo. Vienn. 2d Ed. 1783.

Most of these fall rather within the province of the ophthalmic surgeon than of the physician; but, as their general nature ought to be known to every practitioner, we shall proceed to give a glance at each of them in their order. The maladies of the eye dependant on inflammation, and constituting ophthalmy, have been already treated of in Class III, Order II, HÆMATICA, PHLOGOTICA.

GEN. I. Paropsis. Morbid sight.

Brief survey of their general nature as distinct from surgical practice.

SPECIES I.

PAROPSIS LUCIFUGA.

Night-Sight.

VISION PAINFULLY ACUTE IN A STRONG LIGHT; BUT CLEAR AND PLEASANT IN A DEEP SHADE OR THE DUSK OF THE EVENING.

GEN. I. SPEC. I.

THE specific term *lucifuga* is so distinct as at once to point out the general nature of the affection while constituting a very prominent symptom. The author, however, has found a necessity for introducing this new name, not more from its own clearness than from the confusion which has taken place among earlier writers in distinguishing the disease by two directly opposite terms, nyctalopia and hemeralopia, according as these terms have been used in a literal or a technical and implied sense. The Greeks called it by the former name, literally *night-sight*, in consequence of the person labouring under it being only able to see at night, or in a deep shade; while *nyctalopia* has been used by most modern writers in the opposite sense of night-sight-*ache*, agreeably to the technical or implied meaning of *opia* when employed pathologically; in which case it always imports diseased vision, as though a contraction of the term paropia or paropsis: whence nyctalopia has necessarily been made to import *day-sight*, instead of *night-sight*, or that imperfection of vision in which the eye can only see in the day or whenever there is a strong light. And hence hemeralopia, the

Specific name justified, as being a new term.

Confusion arising from the former names nyctalopia and hemeralopia.

Illustrated.

GEN. I. SPEC. I. Paropsis lucifuga. Night-sight.

opposite to nyctalopia, has been used, with the same confusion and contradiction of signification; by the Greeks importing *day-sight*, being taken naturally or literally; by the moderns *day-sight-ache*, and consequently *night-sight*, being taken technically or by implication; and hence Sauvages, "Græcis hemeralopia; neotericis nyctalopia." It is the *luscitas* of Beer*.

Luscitas of Beer.

Exposure to too strong a light a cause: and why.

The disease is dependant upon a peculiar irritability of the retina, produced by two very different causes: a sudden exposure to a stronger light than the eye has been wont to sustain; and a deficiency of the black pigment which lines the choroid tunic. If the iris be weak and torpid it is enlarged; if strong and contractile, diminished.

From the first cause this disease is common to those who live almost constantly in dark caverns or chambers, as mines, dungeons or other prisons; or who have recently had a cataract depressed or extracted, the growth of which has still more effectually excluded the light from falling on the retina. And in all these cases we find it accompanied with a perpetual nictitation, from the sympathy which prevails between the retina and the orbicular muscles of the palpebræ.

Perpetual nictitation.

Frequent among Italian peasants.

Ramazzini asserts that this complaint is common to the peasants of Italy who are employed in agriculture; but in whom he is able to trace no other peculiarity than a considerable enlargement of the pupil†. It is not difficult perhaps to assign a reason for such an affection among these people, though Ramazzini is silent upon the subject. The sky of Italy is peculiarly bright, its atmosphere peculiarly clear, and its temperature relaxingly warm. The peasants of Italy, therefore, are exposed to the joint operation of almost every cause that can produce habitual debility in the iris, and irritability in the retina. And we find these causes acting with renewed power at the time when the disease chiefly makes its attack, which

Explained.

Effects.

* Lahre von der Augenkrankheiten, als Leitfaden zu seinen öffentlichen Vorlesungen entworrfen. Qwey Bande, 8vo. Wien. 1817.

† De Morbis Artificum, &c.

we are told is on the return of spring, or rather at the vernal equinox, when a double flood of day breaks on them. And such is the dimness it produces that the peasants lose their way in the fields in the glare of noon; but on the approach of night, they are again able to see distinctly. It is hence necessary for them to keep for some weeks in the shade or in comparative darkness, till the eyes recover their proper tone: and the weakness, and consequently the disease, subsides. And hence Ramazzini tells us that in the course of the succeeding month, or, in other words, after they have taken due care of themselves, the peasants recover their sight. The glare of the sun, in tropical regions, and especially where reflected from bright chalk-hills, has often produced the same effect

Gen. I. Spec. I. Paropsis lucifuga. Night-sight.

How removed.

Produced by an intense glare.

A deficiency of the black pigment is occasionally found in persons of a fair complexion and light hair; and, as the retina is hereby deprived of the natural shade that softens the light in its descent upon this very sensible membrane, its morbid irritability is not to be wondered at. Albinoes, who are without the common pigment that lies between the cuticle and cutis in other persons, are always deficient in this also; and hence are peculiarly subject to the present disease. In old persons the same deficiency is sometimes traced, but without painful vision: for at this time of life the optic nerve is become more obtuse. In horses this want of pigment constitutes what is called a *wall-eye*.

Deficiency of black pigment a cause: and why.

Hence common to Albinoes.

Sometimes found in old age.

Constitutes the wall-eye in horses.

The disease is occasionally found as a symptom in ophthalmy, various other irritations of the optic nerve, and hydrops *capitis*; and sometimes terminates in amaurosis*.

Found as a symptom in various diseases.

Acuteness of night-vision is natural to various animals that prowl in the dark; as cats, lynxes, lions, and perhaps, all the feline genus; which save their eyes from the pain produced by broad day-light, by a closer contraction of their irids than mankind are able to effect; expanding them gradually as the night shuts in, till by

Natural to quadrupeds that prowl at night.

* Piso, De Med. Brasil, Lib. II.

GEN. I. SPEC. I. Paropsis lucifuga. Night-sight.

the extent of the expansion, they are able to see much better than mankind in the dark. Owls, bats, cock-roaches, mothes, sphinxes, and many other insects, have a similar power.

Treatment when from accidental causes,

Where the disease proceeds from an accidental irritability of the retina, sedative applications, as the tincture of belladonna, and internal sedatives, as hyoscyamus and conium, have often proved serviceable, and the more so when combined with the bark.

when from defective pigment.

In old age, or an early deficiency of the black pigment that covers the choroid tunic, medicine has very little chance of success, and all we can hope for is to afford occasional relief by palliatives, if the irritation be violent, or accompanied with inflammatory symptoms.

SPECIES II.

PAROPSIS NOCTIFUGA.

Day-Sight.

VISION DULL AND CONFUSED IN THE DARK: BUT CLEAR AND POWERFUL IN BROAD DAY-LIGHT.

GEN. I. SPEC. II. Endemic in various regions.

THIS species, the nyctalopia of neoteric authors, is said to be endemic in Poland, the West Indies, Brazils, and the intertropical regions generally*.

Ordinary cause.

Its cause is precisely the reverse of that of the preceding species; and proceeds from too great, instead of too small, an habitual exposure to light, whence the retina becomes torpid, and requires a strong stimulus to raise it. At noon-tide, therefore, it is sensible to the impressions of objects; but does not clearly discern them in the shade or towards the close of day.

Peculiarly frequent in some parts of France;

Day-sight is also said, in a work of allowed authority†, to be endemic in some parts of France; and par-

* Hantesierck, Recueil d' Observations de Médicine, t. ii.

† Mem. de la Société Royale de Méd. 1786.

ticularly in the neighbourhood of Roche Guyon on the banks of the Seine. And so general is its spread there, that in one village, we are told, it affects one in twenty of the inhabitants, and in another, one in ten, every year. It makes its attack in the spring, and continues for three months: sometimes, though in a slighter degree, returning in the autumn; and there are individuals who have had annual returns of the complaint for twenty years in succession. It passes off after having run its course, or rather, perhaps, after having been treated with due medical attention, without any inconvenience, excepting a weakness in a few eyes that renders them impatient of wind and strong light. The soil is here a dazzling chalk, and the keenness of the first reflected light, after the dreariness of the winter, is probably one cause of so general an evil. Perhaps, however, there is no part of the world in which this disease is found more commonly, or more decidedly, than in Russia: but then it is rarely found except in the Russian summer, when the eye is exposed, almost without intermission, to the constant action of light, as the sun dips but little below the horizon, and there is scarcely any interval of darkness. The malady, again, mostly makes its appearance at this time among the peasants, who protract their hard labour in the fields from a very early to a very late hour; and at the same time exhaust and weaken themselves by their daily fatigue. The sight is soon restored by rest, a proper shade, and bathing the eyes with an infusion of any bitter and astringent vegetable. Dr. Guthrie, in the Memoirs of the Medical Society of London, from which this account has been taken, gives also an example of the disease having appeared suddenly a few springs before in a detachment of Russian soldiers, who, being ordered to attack a Swedish post, at the moment of its incursion had nearly destroyed one another by mistake. These men had been harassed by long marches, and been exposed night and day to the piercing glare of an uninterrupted scene of snowy mountains, both which causes had concurred in producing this effect.

Gen. I. Sect. II. Paropsis nostifuga. Day-sight.

often returning periodically.

Explained.

Still more commonly at times in Russia.

At what season.

Easily cured.

Instance of its having nearly led to extensive and serious mischief.

Gen. I. Spec. II. Paropsis noctifuga. Day-sight.

Sir Gilbert Blane has found it occasionally occur in scorbutic patients; but no such disease appeared in the Russian soldiery. Hens are well known to labour under this defect naturally; and hence they cannot see to pick up small grains in the dusk of the evening, and so employ this time in going to roost: on which account the disease is sometimes called *hen-blindness*.

Amongst hens a natural defect; whence called hen-blindness.

Curative process.

In this species tonics and gentle stimulants offer the best means of cure. The bark may be freely employed internally, and blisters externally, with the vapour of camphor, ether, or carbonated ammonia; and occasionally illining the ball of the eye with a few drops of the tincture of opium, the citrine ointment, or a minute portion of prussiate of iron, also in the form of an ointment.

When endemic mostly intermittent.

In most of the endemic cases it seems to be an intermittent, as the preceding species appear to be occasionally; and in such circumstances a free use of the bark is the plan chiefly to be depended upon.

Sight sometimes acute and vivid. Exemplified.

When the sight is once stimulated by the full light of the day, it occasionally becomes peculiarly acute and vivid. Plenck asserts that he has known some men labouring under this disease, evince so high an excitement of vision as to be able to distinguish the stars at noon.

Singular case of periodical day-sight.

Dr. Heberden has communicated a singular case of this species which it will be best to give in his own words *. "A man, about thirty years old, had in the spring a tertian fever, for which he took too small a quantity of bark, so that the returns of it were weakened without being entirely removed. He therefore went into the cold bath, and after bathing twice he felt no more of his fever. Three days after this last fit, being then employed on board of a ship in the river, he observed, at sun-setting, that all objects began to look blue, which blueness gradually thickened into a cloud; and not long after he became so blind as hardly to perceive the light of a candle. The next morning about sun-rising his sight was restored as perfectly as ever. When the next night came on he lost his sight

* Medical Transactions, Vol. i.

again in the same manner; and this continued for twelve days and nights. He then came ashore where the disorder of his eyes gradually abated, and in three days was entirely gone. A month after he went on board another ship, and after three days' stay in it the night-blindness returned as before, and lasted all the time of his remaining in the ship, which was nine nights. He then left the ship, and his blindness did not return while he was upon land. Some little time afterwards he went into another ship in which he continued for ten days, during which time the blindness returned only two nights, and never afterwards."

GEN. I. SPEC. II. Paropsis noctifuga. Day-sight.

As this distinguished writer has not undertaken to account for this singular affection, it may seem, perhaps, presumptuous to drop a hint upon the subject. Yet it should not pass unnoticed that the man was in a state of great nervous debility, and probably irritability, as its effect. He had formerly been employed, we are told, in lead-works, and had twice lost the use of his hands. And not many weeks from the time the above account closes, he complained of loss of appetite, weakness, shortness of breath, and a cough; which, together with other complaints, gradually increased upon him, so that he died before the end of the year. I have observed that nyctalopia *noctifuga* is often an intermittent affection. In the present case it was distinctly of this nature, and evinced a decided quotidian type. We are not acquainted with the exciting cause of this intermittent; but we know that when once a circuit of action has been established in a weakened and irritable habit, it adheres to the system with almost invincible tenacity, and is re-called with the utmost facility upon a repetition of such a cause. And hence the uniform return of the affection on ship-board where it commenced till a cure was obtained.

Case explained.

SPECIES III.

PAROPSIS LONGINQUA.

Long-sight.

VISION ONLY ACCURATE WHEN THE OBJECT IS FAR OFF.

GEN. I. SPEC. III.

THIS is the dysopia *proximorum* of Cullen, the vuë longue of the French.

Seat of affection chiefly the iris, as that of the preceding two is the retina.

In both the preceding species the morbid affection seems chiefly to appertain to the retina; in the present species it belongs chiefly to the iris, which is habitually dilated, and not easily stimulated to a contractile action. "For it is well known", observes Dr. Wells, "to those who are conversant with the facts relating to human vision, that the eye in its relaxed state is fitted for distant objects, and that the seeing of near objects accurately is dependent upon muscular exertion".

The species offers three varieties as follow:

α Vulgaris. Common long-sight.	Iris relaxed, but moveable, cornea mostly too flat.
β Paretica. Unalterable long-sight.	Iris incontractile, pupil unchangeable, from partial paralysis.
γ Senectutis. Long-sight of age.	Cornea less convex; relaxation and hebetude common to all the powers of the eye.

α P. longinqua vulgaris. Common long-sight.

The FIRST VARIETY is common to every period of life, in which the iris is affected with an habitual relaxation; and may be sufficiently understood from the remarks already offered.

β P. longinqua paretica.

The SECOND VARIETY constitutes the disease called IMMUTABILITY OF SIGHT by Dr. Young*; and is ad-

* Phil. Trans. Year 1793.

mirably described by Dr. Wells in the Philosophical Transactions, in an interesting case of a young person about thirty-five years of age, whose retina was as sensible to the stimulus of light as ever; yet who, from a paresis, or permanent dilatation of the pupil, saw near objects with considerable confusion, but remote objects with perfect accuracy. The power of moving the upper eye-lid was also lost. It was an extreme case of the disease before us, complicated with partial paralysis of the adjoining muscles, and may be imitated by applying the tincture of belladonna. It was easily remedied by the use of spectacles with convex glasses, by means of which the patient was able to read without difficulty in a printed book, whose letters he was scarcely able to distinguish from each other before the spectacles were applied.

GEN. I. SPEC. III. β P. longinqua paretica. Unalterable long-sight. Singular case complicated with paralysis of the adjoining muscles. How imitated. How remedied.

The THIRD VARIETY or that produced by old age, constitutes the presbytia, and presbyopia of medical writers, from πρέσβυς, *senex;* and here the hebetude and relaxation, while short of paralysis, extend usually through the retina, iris, and, indeed, every part of the complicated organ of the eye; on which account the cornea becomes less convex in its form and less pellucid in its transparency.

γ P. longinqua senectutis. Long-sight of age. The presbytia of many writers.

In the present, as in the other varieties of this affection of the eyes, the best remedy for supplying the deficient convexity of the cornea, as well as the deficient irritability of the iris, is convex spectacles; adapting their power to the precise demand of the eye and increasing it as the demand grows more urgent.

Remedial plan.

SPECIES IV.

PAROPSIS PROPINQUA.

Short-sight.

VISION ONLY ACCURATE WHEN THE OBJECT IS NEAR.

GEN. I. SPEC. IV. Mostly an opposite disease to the former:

THIS is in most respects an opposite disease to the preceding; for it not only produces an opposite effect, but proceeds, in the main, from an opposite cause. In the former the iris is for the most part relaxed and weakly; here it is sound, often too much contracted: in the former the cornea is, in almost all cases, too much flattened, in the present it is too convex or polarized. The best palliative, therefore, is spectacles of an opposite character to those recommended under the preceding species; and with these we must satisfy ourselves till age brings us a natural relief, by taking off the entony and depressing the cornea. Unfortunately, however, this is a relief that does not always continue for many years; since the excess of tone becomes too much lowered as the age advances, and the sight grows imperfect from this cause.

and hence to be remedied by opposite means.

Cured by age;

but often only cured temporarily.

Called myopiasis, as mice are supposed to possess it naturally.

Mice are said to have this kind of vision naturally, and hence one of the technical names for it is myopia or myopiasis, literally "mouse-sight".

Great confusion in the common technical terms.

In the common technical terms for the present and the preceding species, there is the same kind of confusion in respect to the colloquial terms by which these diseases are distinguished as we have already shown to exist between the technical and colloquial names of the first and second species.

Thus paropsis *longinqua*, the long-sight of the common idiom, is the amblyopia, or dyopia *proximorum* of Sauvages and Cullen, literally "morbid sight of *near*

objects;" while p. *propinqua*, the short-sight of the common idiom, is the amblyopia, or dyopia *dissitorum* of the same writers; literally "morbid sight of objects far off". In the terms now offered the technical and colloquial ideas run parallel.

Gen. I. Spec. IV. Paropsis propinqua. Short-sight.

SPECIES V.

PAROPSIS LATERALIS.

Skew-sight. Sight Askew.

VISION ONLY ACCURATE WHEN THE OBJECT IS PLACED OBLIQUELY.

Gen. I. Spec. V. Disease explained.

In this species the patient can only see in an oblique direction, in consequence of some partial obfuscation of the cornea (usually perhaps from scratches or slight scars) or of the humours through which the light is transmitted, or from a partial paralysis of the retina. This must not be confounded with strabismus, or squinting, as it sometimes has been, but which proceeds from a different cause, and is accompanied with different phænomena. In skew-sight or lateral vision, the axis of the eye affected usually coincides with that of the sound eye, though it runs somewhat obliquely to avoid the obstruction in the tunic. In strabismus the two axes do not coincide, and the judgement is formed from the strongest eye alone. If, however, in lateral vision, the obstruction be such as to make the optical axis of the affected eye at variance with that of the sound eye, squinting must be a necessary consequence of the disease.

How to be distinguished from strabismus or squinting.

Strabismus sometimes follows.

SPECIES VI.

PAROPSIS ILLUSORIA.

False-sight.

IMAGINARY OBJECTS FLOATING BEFORE THE SIGHT; OR REAL OBJECTS APPEARING WITH IMAGINARY QUALITIES.

Gen. I. Spec. VI.

THIS species, thus defined, clearly includes two varieties as follow:

α Phantasmatum. Ocular spectres.	Appearances of objects before the sight that have no real existence.
β Mutationis. Ocular transmutations.	Real objects apparently changed in their natural qualities.

Both these varieties offer a very numerous family of distinct illusory perceptions, which require to be noticed in their order.

α P. illusoria phantasmatum. Ocular spectres. Dark spots. The muscæ volitantes of various authors.

Of the OCULAR SPECTRES, constituting the FIRST VARIETY, one of the most frequent forms is that of DARK SPOTS. These are the muscæ *volitantes* of many authors; and "are sometimes," says Dr. Young "if not always occasioned by an opacity of some of the vessels of the vitreous humour near the retina. They are seen in a full light, and cannot, therefore, as Sauvages has justly remarked, be caused by any thing in the anterior part of the eye; and they may often be observed to change their form with the motions of the eye; which they could not do if they did not depend on some floating substance. Their apparent change of position, when we attempt to follow them with the eye, is a necessary consequence of the motion of the eye itself which contains them" *.

Cause.

Apparent change of position accounted for.

* Delius, Diss. Phantasmata ante oculos volitantia, affectus oculorum singularis. Erlang. 1751.

If, however, these phantasmata depended upon vascular opacity of any kind, it is difficult to account for their mobility. And hence Demours is, perhaps, nearer the mark in ascribing them to small portions of Morgagni's humour that have acquired an increase of density, weight, and refractile power without losing their transparency *. And in this view of their formation Mr. Guthrie coincides †.

Gen. I. Spec. VI. a P. illusoria phantasmatum. Ocular spectres.

Supposed to be seated in the humor Morgagni by Demours and Guthrie.

Another form these ocular spectres exhibit is that of NET-WORK; hence called suffusio *reticularis* by Sauvages, and visus *reticularis* by Plenck. This is sometimes permanent; sometimes transitory; and is probably, as conjectured by Sauvages, produced by a morbid affection of the arteriolæ of the retina.

Ocular spectres of net-work: or visus reticularis.

A third form is that of SPARKS; and hence called by Sauvages suffusio *scintillans*. It proceeds generally from a blow or excess of light.

Sparks or suffusio scintillans.

The eye is also troubled with an imaginary sense of DAZZLING, constituting the myrmaryge of the Greek writers. Its usual cause is supposed to be a plethora of the minute vessels of the eye.

Dazzling or myrmaryge.

Sometimes from the same cause the ocular spectres assume an IRRIDESCENT APPEARANCE; or exhibit, in splendid succession, all the colours of the rainbow. This Sauvages calls suffusio *coloris*. It is occasionally a regularly intermittent affection, or returns at stated periods, and particularly in the evenings; and occasionally the morbid appearance is confined to a single colour. Dr. Heberden has given a curious example of an affection of this kind in a lady of advanced age, who took lodgings on the eastern coast of Kent in a house that looked immediately upon the sea, and was of course very much exposed to the glare of the morning sun. The curtains of the bed in which she slept, and of the windows, were of white linen, which added to the intensity of the light. When she had been there about ten days, she observed

Irridescent spectres, or suffusio coloris.

* Traité des Maladies des Yeux, p. 409.

† Lectures on the operative Surgery of the Eye, p. 211. 8vo. 1823.

GEN. I. SPEC. VI. α P. illusoria phantasmatum. Ocular spectres.

one evening at the time of sun-set that first the fringes of the clouds appeared red, and soon after the same colour was diffused over all the objects around her, and especially if the objects were white, as a sheet of paper, a pack of cards, or a lady's gown. This lasted the whole night; but in the morning her sight was again perfect. The same alternation of morbid and sound sight continued the whole time the lady was on the coast, which was three weeks, and for nearly as long after she left it; at which time it ceased suddenly and entirely of its own accord. Excess of light upon a delicate and irritable habit, appears to have been the cause of this singular affection. The retina was too strongly excited to throw off the impression easily—and that of the red rays of the descending sun, constituting the last impression communicated, remained after the sun himself had disappeared. The circle of action may be easily accounted for by an uniform return of the same cause.

β P. illusoria mutationis. Ocular transmutations. Metamorphopsia of Plenck.

The SECOND VARIETY of FALSE SIGHT, or that in which real objects appear changed in their natural qualities, is by Plenck denominated, in consequence of such change, metamorphopsia.

Error of form.

Sometimes the change exhibits ERROR OF FORM; and the objects appear too large, too small, cut in half, or distorted.

Error of motion.

Sometimes ERROR OF MOTION: in consequence of which they seem to be dancing, nodding, or in rapid succession.

Error of number. The diplopia of Sauvages.

Sometimes ERROR OF NUMBER: and then they appear double, triple, or otherwise increased or multiplied; constituting the diplopia of Sauvages and many other writers.

Error of colour.

Sometimes ERROR OF COLOUR, in which case one hue is mistaken for another, as red for green, or green for yellow, or every hue appears alike. Examples of this imperfection are not unfrequent. Mr. Scott has given a singular instance of it in one of the volumes of the Philosophical Transactions *, and Dr. Priestly in another †.

* Vol. LXVIII. 1778. p. 611. † Id. LXVII. 1777. p. 260.

The last is especially worthy of notice as in some degree a family defect; and was communicated to Dr. Priestley by Mr. Huddart of North America. Of five brothers and two sisters, all adults, three of the former were affected with it in a greater or less degree, while the remaining two and the two sisters possessed perfect vision. One of the brothers could form no idea whatever of colours, though he judged very accurately of the form and other qualities of objects; and hence he thought stockings were sufficiently distinguished by the name of stockings, and could not conceive the necessity of calling some red and others blue. He could perceive cherries on cherry-trees, but only distinguished them, even when red-ripe, from the surrounding leaves by their size and shape. One of the brothers appears to have had a faint sense of a few colours, but still a very imperfect notion: and upon the whole they seem to have possessed no other distinguishing power than that of light and shade, into which they resolved all the colours presented to them; so that dove and straw-coloured were regarded as white, and green, crimson, and purple, as black or dark. On looking at a rainbow one of them could distinguish it as consisting of stripes, but nothing more.

GEN. I. SPEC. VI. β P. illusoria mutationis. Ocular transmutations. Singular example.

Dr. Nicholl of Ludlow has published a case in the Medico-chirurgical Transactions *, of the same kind, though the imperfection seems to have been confined to one or two colours alone. The patient could easily distinguish the green of the grass or the leaves of the trees, but, like those in Mr. Huddart's statement, he confounded with the green the red-fruit or flowers which happened to be intermixed with it. The false-sight in this case was also connected with paropsis *longinqua;* for the patient saw objects at a greater distance than other people, and more distinctly in the dark. The irids were here, also, grey, with a yellow tinge round the pupil.

Further illustrated, in a case connected with paropsis longinqua.

The causes of these varieties are not always assignable: many of them, however, are the same as have been point-

Causes often unassignable: sometimes those of the preceding varieties.

* Transact. of the Medico-Chir. Soc. Vol. IX.

GEN. I. SPEC. VI. β P. illusoria mutationis.

Ocular transmutations.

ed out under the variety of ocular spectres. Diplopia, or errors of number, have often been occasioned by long exposure to severe cold, sometimes by local spasm, sometimes by hydrocephalus *. Baumer gives a case produced by a wrong position of the pupil †. Raghellini another caused by a double pupil ‡. In Lentin is a singularly complicated example of objects seen triply §.

Particular causes of diplopia or error of number.

Triplopian.

The chief diagnostic of many of these illusions is their mobility ||, which distinguishes them very decidedly from the fixt spots perceived in the eye, and which depend on an opacity of the lens, or a defective state of the retina. They sometimes precede amaurosis or cataract, though not very often; and when they have reached a certain point, cease to become more troublesome, or rather, from habit, to be troublesome at all, and are little attended to: for if cataract or amaurosis do not soon follow, there is no reason for expecting either of them; a consolation of no small moment, as no certain remedy has hitherto been discovered.

How far remediable.

The chief pathognomic, their mobility.

In time cease to be troublesome,

and do not predispose to any worse complaint,

In other cases, and especially where the misaffection is not structural, but dependent upon an entonic or an atonic condition of the optic nerve, muscular fibres, or blood-vessels, benefit has been derived, in the first instance, from local bleeding, blisters, and sedatives; the sedatives being employed both generally and topically: and in the last instance by stimulant collyriums, and general tonics.

Many of these varieties of false-sight, and especially ocular spectres, are also found as symptoms in several species of dinus, syspasia, syncope, plethora, cephalitis, dyspepsy, and various fevers; some few of the filaments of the great sympathetic passing off, at its origin within the cavernous sinus to the orbit, and uniting with the lenticular ganglion ¶.

* Justi, Baldinger, N. Mag. Band. XI. p. 446.

† Art. Hafn. I. Art. xxvii.

‡ Lettera al S. Coechi sopra l'offesa della vista in una Donna. Venet. 1748, 1749.

§ Libr. II. Obs. 20. || Guthrie, Lectures, &c. ut suprà, p. 212.

¶ Cloquet, Traité d'Anatomie Description. Blork, Beschreisbung des fuenfter nonverpaares, &c, Leip. 1817.

SPECIES VII.

PAROPSIS CALIGO.

Opake Cornea.

DIMNESS OR ABOLITION OF SIGHT FROM OPACITY OF THE CORNEA, OR SPOTS UPON ITS SURFACE.

Gen. I. Spec. VII. Antiquated colloquial name web-eye.

THE Latin term CALIGO sufficiently explains the nature of the disease, by importing "dimness, darkness, cloudiness, obscurity". In old English this opacity, as well as the pterygium *, was denominated a "web of the eye", from its apparently commencing in an obscurity of the hyaloid or choroid membrane, and giving the idea of a film spreading across the sight; whence Shakspeare in King Lear, "This is the foul fiend Flibbertigibbet; he gives the WEB, and the PIN, squints the eye, and makes the hare-lip." The PIN is a variety of the synezesis, "closed or contracted pupil", or of one species of amaurosis, and will be noticed in its proper place.

Exciting cause rarely discoverable: yet a common consequence of old age. Probable proximate cause. How far remedial.

The exciting or immediate cause of this disease is rarely discoverable, as for the most part it makes its approach imperceptibly; it is often, however, a common consequence of old age. Judging from the last species, we may place the usual proximate cause in a varicose or congested state of the vessels of the cornea, or hyaloid tunic from debility, whence moreover the finer and more attenuate parts of the secerned fluid are alone carried off, and the denser and grosser left behind. Hence stimulants and tonics, as blisters, weak solutions of brandy, camphor, alum, and nitrate of silver, are often found useful in the present day; as the saffron-coloured, or golden acrid juice

* Vol. II. Cl. III. Ord. II. Sp. 1.

Gen. I. Spec. VII. Paropsis Caligo. Opake cornea.

of the chelidonium *majus*, or greater celandine, diluted with water or milk, was formerly.

Chelidonium majus.

The disease is often accompanied with or preceded by congestion of the vessels of the head, and consequently a stupid pain and heaviness: and in some cases there is reason to apprehend that this affection of the head is itself the cause, or rather that an obstructed liver is the primary cause, from which the overloaded state of the blood-vessels in the head originates. But where the pain in the head is acute, and has followed instead of preceding the obscurity, the affected membrane has probably yielded to inflammation. Leeches or cupping-glasses should be here freely applied in the first instance, as well as brisk cathartics and mercurial alterants, and afterwards the stimulant plan just noticed. It is, however, generally a tedious disease at best, and mostly incurable: and the author has at this moment a patient who has laboured under the whole of the above symptoms for some months, though it is not long that he has had the care of her. She has tried local bleeding, purgatives, and at night an equal mixture of Plummer's and the mercurial pill; with the vapour of ether applied to the eyes three times a-day, and apparently with advantage.

Sometimes apparently caused by congestion in the head, or of the liver.

Remedial process in this case.

A tedious disease.

Exemplified.

Pulsatilla nigricans or pasque-flower.

Baron Stoerck strongly recommended an extract of the pasque-flower, pulsatilla *nigricans*, the anemone *Pulsatilla* of Linnéus, for internal use; and from the success he ascribed to it, the plant found its way into the Edinburgh Pharmacopœia. The anemone *pratensis* would probably answer as well. These plants in their recent state have very little smell; but their taste is extremely acrid, and when chewed they erode the tongue and fauces. Other German practitioners, however, as Schmücker, Bergius, and Richter, have tried even the pulsatilla without success, though they have carried their doses to a larger extent than Stoerck ventured upon. Small and frequently repeated doses of tartarized antimony appear, upon so many testimonies, to have been successful in various cases, that it is a remedy well worth a trial. Dr. Rowley used

Anemone pratensis.

Tartarized antimony in small doses.

it with success upon an extensive field of practice *. Gleise employed it with equal success alone †, and Hufeland as satisfactorily in combination with warm bathing, and the internal use of millepedes ‡: the last of which, however, may be spared without any serious risk. The disease has sometimes disappeared spontaneously, or without any known cause.

GEN. I. SPEC. VII. Paropsis Caligo. Opake cornea.

Where the disease has become permanent, it may be distinguished from a cataract, and hence a useless operation be avoided, by a greenish hue of the iris if previously blue or grey, or a reddish, if previously brown. The iris moreover remains immoveable, as the debility has now extended to itself, and from an irregular contraction of its fringe, the pupil acquires a broken, and for the most part angular or elliptic shape.

How distinguishable from cataract.

In newly-born infants spots on the cornea are occasionally met with, which soon vanish spontaneously §: probably the rays of light acting as a salutary stimulus upon the occasion.

Spots on the cornea of newly-born infants: soon vanish, and why.

SPECIES VIII.

PAROPSIS GLAUCOSIS.

Humoral Opacity.

DIMNESS OR ABOLITION OF SIGHT FROM OPACITY OF THE HUMOURS.

GLAUCOSIS is a Greek term from γλαυκὸς, "blueish or greenish-tinted," from the common colour of the obscurity. It was also called by the Greeks glaucóma, and by the Romans glaucédo. Glaucosis is here preferred to

GEN. I. SPEC. VIII. Specific name, its origin and termination.

* On the Principal Diseases of the Eyes.
† Nouvelles Observations, &c. ‡ Von Blathern. p. 159.
§ Farr. Med. Commun. II. 30.

GEN. I. SPEC. VIII. Paropsis Glaucosis. Humoral opacity.

glaucoma, because the final *oma* imports usually, and, for the sake of simplicity and consistency, ought always to import, external protuberance, as in staphyloma, sarcoma, and various others noticed in detail in the volume of Nosology.

Probable proximate cause.

This species is probably produced in most instances by a torpitude of action in the absorbents that carry off the waste fluid of the humours, similar to that described under the last species; and is sometimes benefited by a like stimulant and tonic plan of treatment.

Caligo of Sennert.

Sennert calls it indeed a calígo, and distinguishes it by its proceeding from a defect of the aqueous humour—calígo à defectu humoris aquei; by which he seems to mean that the torpitude belongs rather to the excretory than the absorbent vessels; but, in this case, the cornea would appear depressed or flattened, which is rarely if ever a symptom.

Glaucoma of Guthrie.

Mr. Guthrie has united the two diseases in the same manner as Sennert, describing both under the name of Glaucoma, which he defines "an alteration of the component parts of the vitreous humour, accompanied by derangement of structure of the hyaloid membrane of the retina, and tunica choroidea, the vessels of which are always more or less in a varicose state." *

Carried off spontaneously or by a fever.

Both this and the preceding species have sometimes ceased spontaneously †, without any apparent cause; and Helwig ‡ gives an instance in which the cessation was not only spontaneous but sudden. They have also been carried off by fever.

How distinguishable from caligo.

In the caligo there is often a sense of fulness, stiffness, or other uneasiness, and occasionally of pain. In the present affection little disquiet of any kind is complained of.

Treatment.

Collyriums of the astringent minerals or metallic earths, or other stimulants are often serviceable, when persevered in §.

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* Lectures on the operative Surgery of the Eye, p. 214.

† Hagendorn, Observ. Med. Cent. I. Obs. 56. Franc. 1698, 8vo. Eph. Nat. Cur. Dec. I. Art. II. Obs. 166.

‡ Obs. 28.

§ Collezione d' Osservazioni e Riflessioni di Chirurgia di Giuseppe Flajani, Dottore in Medicina e Chirurgia, &c. Tomi IV. Roma, 1803.

SPECIES IX.

PAROPSIS CATARRACTA.

Cataract.

DIMNESS OR ABOLITION OF SIGHT FROM OPACITY OF THE CRYSTALLINE LENS.

GEN. I. SPEC. IX.

The pearl-eye of old English writers.

Catarracta whence derived.

Primary meaning of the term.

THE cataract as it is now called, was by old English writers named PEARL-EYE OR PEARL IN THE EYE, and is so denominated by Holland, the faithful translator of Pliny. Catarracta, as a Greek term, is usually derived from καταῤῥάσσω, "to disturb, destroy, or abolish". καταῤῥάκτης or καταῤάκτης, however, was employed by the Greek writers themselves to signify a gate, door, or loop-hole, and the bar which fastens it, and becomes the impediment to its being opened. And it is probably from this last sense that the term cataract was first applied to the disease in question, as forming a bar to the eyes which were called the loop-holes or windows of the mind by various philosophers, as we learn from Lucretius, who thus closes his opposition to their view:

> Dicere porro oculos nullam rem cernere posse,
> Sed per eos animum ut *foribus* spectare reclusis
> Difficile est *.

> To deem the eyes, then, of themselves survey
> Nought in existence, while th' interior mind
> Looks at all nature through them, as alone,
> Through *windows*, is to trifle—

Whence, perhaps, Shakspeare in the speech of Richmond:—

> To thee I do commend my wakeful soul
> Ere I *let fall the windows* of mine eyes.

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* De Rer. Nat. III. 360.

GEN. I. SPEC. IX. Paropsis Catarracta. Cataract.

Called by the Greeks hypochyma, apochysis, and hypochysis.

The Greeks themselves, however, called this disease indifferently hypochyma, apochysis, and hypochysis. The earlier Latins, suffusio: while catarracta seems first to have been made use of by the Arabian writers, and was probably introduced into the medical nomenclature by Avicenna. Yet the more common name among the Arabians was gutta *obscura*, as that for amaurosis was gutta *serena;* the pupil, in this last species, being serene or transparent.

Cataracta probably first used by Avicenna: though the common Arabian term was gutta obscura.

Origin and meaning of gutta obscura and gutta serena.

The Arabians, who had adopted generally the humoral pathology of Galen, conceived both these diseases to be the result of a morbid rheum or defluxion falling on a particular part of the visual orb, in the one case producing blindness with obscurity, whence the name of an obscure *rheum* or *gutta;* and in the other without obscurity, whence the contrary name of a transparent or serene *rheum* or *gutta*. But as various other diseases, and particularly of the joints, were also supposed to flow from a like cause, and were far more common, the terms *gutta* and *rheuma* were afterwards emphatically applied, and at length altogether limited, to these last complaints: whence the terms *gout* and *rheumatism* which have descended to the present day, as the author has already had occasion to observe under ARTHRODIA PODAGRA. For *gutta* the Arabian writers sometimes employed *aqua;* and hence, cataract and amaurosis are described by many of them under the names of aqua *obscura*, and aqua *serena;* and the former, by way of emphasis, sometimes under the name of *aqua* or *arqua* alone. For gutta *obscura* the modern Germans have revived the terms ONYX and CERATONYX where the lens is peculiarly hard or horny *.

Onyx and ceratonyx of modern Germans.

The opacity producing a cataract may exist in the lens alone, the capsule alone, or in both; thus laying a foundation for the three following varieties:

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* See Langenbeck's Prufung der Keratonyxis, einer neuer Methode, &c. Götting. 1811, 8vo.

α Lenticularis. Lenticular Cataract.	The opacity existing in the lens itself, and confined to it.	Gen. I. Spec. IX. Paropsis Cataracta. Cataract.
β Capsularis. Capsular or membranous Cataract.	The opacity confined to the capsule, or membrane of the lens.	
γ Complicata. Complicated Cataract.	The opacity common to the lens and its capsule.	

Cataract of the humour of Morgagni, what.

We are told moreover by Richter* of a cataract of the humour of Morgagni, or the interstitial fluid which lies between the capsule and the lens: whence this has also been copied by Plenck, Professor Beer, and Sir William Adams into the list of modifications; but rather as a possible than an actual case; for none of these practitioners give a single example of such a variety ever having occurred to them with certainty, though Beer suspected it in one case†.

Sometimes accompanied with a sac, containing pus, and particularly named by Schmidt.

Beer's seat of the sac.

It is sometimes accompanied with a sac inclosing a small body of pus or ichor, and is probably the result of the inflammation that produced it. In this case it forms the cataracta capsulo-lenticularis cum bursa ichorem continente of Schmidt‡. Beer affirms that this sac is commonly seated between the lens and posterior part of the capsule, and very rarely between the former and the anterior part§.

Multiplicated subdivisions of Beer;

being nine for his true, and four for his spurious cataract,

Professor Beer seems to have refined a little too much in his divisions and subdivisions of cataract, for he not only assigns a distinct place to the Morgagnian, and this pustular cystic, but to a cystic form without pus, to a siliquose, and a trabecular; while he further partitions the capsular into two separate forms, according as it is before or behind in the capsular chamber; thus giving us a catalogue of nine distinct forms of what he calls the *true* cataract; while he allots four other subdivisions to what he denominates the *spurious* cataract: meaning hereby some other obstacle to vision, the seat of which is

* Von der Ausziehung des grauen Staars. Gött. 1773. 8vo.

† Lehre von den Augenkrankheiter, Band II. Sect. 56.

‡ Ueber Nächstaar und Iritis, &c. Wien 1801.

§ Lehre von der Augenkrankheiter, Band II. p. 301. 1813.

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without the crystalline capsule, between its anterior hemisphere and the iris, and consequently constitutes a distinct disease, embracing several modifications of paropsis *Glaucosis*.

Cataracts differ in colour and consistency.

Cataracts are of different colours and of different degrees of consistency from circumstances influencing the morbid action with which we are but little acquainted; and as little with the occasional causes of such action, though old age seems to be a common predisposing cause. They are, therefore, black, white, leaden-hued, ferruginous, green, amber; as they are also fluid or milky, soft, firm, hard, horny, and even bony, for they have been sometimes found of this last texture *. They are not unfrequently the result of an hereditary taint, adhering to generation after generation, and appearing either congenitally, or by a very general predisposition afterwards.

The consistency not to be gathered from the colour; soft cataract, what; hard cataract.

From the colour of the cataract no conclusion, in the opinion of that acute observer Mr. Pott, can be drawn in regard to its consistence; but he thinks that when the opake crystalline is perfectly dissolved so as to form a *soft* cataract, it is somewhat enlarged; and that when such dissolution does not take place, and a *hard* cataract is produced, the crystalline is in some degree lessened. The hard cataract has also been distinguished by the name of *ripe*, as the soft by that of *unripe*. "But if we would think and speak of this matter", observes Mr. Pott, "as it really is, we should say that a dissolution or softening of the crystalline lens is by much the most common effect; and that seven times out of nine, when it becomes opake, and tends to form a cataract, it is more or less softened: the softening sometimes extending through the whole range of the lens and sometimes through only a part of it; while, however, the part that remains undissolved is rarely, if ever so firm as the centre of the sound crystalline." Mr. Pott proposes it as a

* Wenzel, Traité de la Cataracte avec des Observations. Paris, 1786. Guthrie's Lectures, &c. on the Eye, p. 208.

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question, whether cataracts, which have been found perfectly soft, have not in general grown opake by slow degrees? and whether those which have been discovered to be firm have not become opake hastily, and been preceded by, or accompanied with, severe and deep-seated pain in the head, particularly in the back part of it?*

Whether soft cataracts of slow growth?

and firm of rapid growth?

There is no ophthalmologist, however, who has paid so much attention to this subject as Professor Beer; and though his divisions are perhaps a little too minute, yet the microscopical accuracy with which he has followed up all the modifications of the cataract are entitled to our most serious attention. He agrees with Mr. Pott that a hard cataract is always comparatively small, though he adds that every small cataract is not necessarily hard. He is peculiarly minute in examining all the qualities which the disease may exhibit of position, colour, shadow, shape, range; together with the mobility and degree of prominence of the iris; and till all these characters have been accurately weighed, he hesitates to determine as to the variety of the cataract; or, in effect whether it be a cataract at all. The shadow cast by the iris constitutes his leading clue. If the lens in an opake state maintain the size it possest when transparent, there is a manifest shadow thrown back upon the surface of the cataract by the iris. If the cataract be less than the natural lens, this shadow is broader than usual. If the opake lens be swollen no shadow is present, as the capsule is pushed forward into contact with the iris, and the posterior chamber is abolished. And by carefully comparing all the signs that lie before him, he is able to indicate with certainty, in every instance, the seat, the size, and the consistence of the cataract.

Minute but accurate remarks of Beer.

The verification of a cataract.

Character of the shades cast at times by the iris.

We have already observed that a cataract is occasionally the result of an hereditary taint; in other instances it originates spontaneously, or from causes we cannot trace. It has, however, often followed upon convulsions, chronic

Sometimes produced from hereditary taint.

Occasional causes.

* Chirurgical Observations relative to the Cataract, &c. 8vo. 1775. London.

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head-ache, syphilis, rheumatism, suppressed perspiration, and in a few instances TRICHOSIS *Plica*, or matted hair*. It has also appeared as an effect of inflammation, produced by a thunder storm†.

Siliquose cataract, cause and character.

The siliquose or bean-shaped cataract is usually the result of a wound or rupture of the capsule, through which the aqueous humour is admitted to the lens. In children this mischief is occasionally produced by those fits of convulsion to which they are subject as soon as born, and during which the muscles of the eye-ball are affected with violent spasms‡. At this age the opacity is a light gray, and evidently has its seat in the anterior capsule, which is shrivelled and wrinkled. In adults the opacity is chalky, when the capsule has been wounded; otherwise it is dusky or yellowish; and the kernel of the lens usually remains, while its surface and circumference are dissolved. The opacity is flat; and the shadow of the iris broad. From its occurring occasionally in infants soon after birth, it is often confounded with a genuine congenital cataract.

Has been cured spontaneously, ceased suddenly, and carried off by a fever.

Like PAROPSIS *Glaucosis* or humoral opacity, it has sometimes ceased spontaneously, or without any manifest cause§; and Helwig gives an instance in which the cessation was not only spontaneous but sudden‖. It has also, at times, been carried off by a fever¶.

Hence medicine might be supposed serviceable:

There is hence, specious ground for conceiving that some medicine might be discovered capable, by some general or specific action, of producing a like change, and proving a remedy for the disease; and the more so as we find ganglions and other accidental deformities frequently removed from the extreme parts of the system by external or internal applications.

but no general or specific remedy has been discovered in the curative process hitherto pursued.

But no such remedy has hitherto been descried, or at least none that can be in any degree

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* De la Fontaine, Chirug. Med.

† Richter, Chir. Bibl. Band. VI. 158. ‡ Beer, ut supra.

§ Haggendorn, Observ. Med. Cent. I. Obs. 50. Franc. 1696, 8vo. Rudolf, Miscell. Bonol. Tom. IV. 258. Walker, On the Theory and Cure of a Cataract.

‖ Observ. Physico-Med. 23, Aug. Vind. 1680, 4to.

¶ Velschius, Episagm. 20.

relied upon, excepting in those cases of supposed but miscalled cataracts, which have consisted in a deposition of lymph from an inflammation of the iris and ciliary processes: for recourse has been had to mercurial preparations both external and internal, as well as almost every other metallic salt, aconite, the pasque-flower, or pulsatilla, to protracted vomiting, electricity, and puncturing the tunics of the eyes, but without any certain advantage*. This is the more to be lamented, because whatever surgical operation may be determined upon as most adviseable, there is no guarding, on all occasions, against the mischievous effects which may result, I do not mean from the complication or severity of the operation, for this, under every modification, is simpler and less formidable than the uninitiated can readily imagine; but from the tendency which is sometimes met with, from idiosyncrasy, habit, some peculiar acrimony, or other irritable principle, to run rapidly into a state of ulcerative inflammation, and in a single night, or even a few hours, in spite of the wisest precautions that can be adopted, to endanger a total and permanent loss of vision. I speak from personal knowledge, and have, in one or two instances, seen such an effect follow, after the operation had been performed with the utmost dexterity, and with every promise of success; and where a total blindness has taken place in both eyes, the operation having been performed on both; neither of them being quite opake antecedently, and one of them in nothing more than an incipient state of the disease, and the patient capable of writing and reading with it. And hence it is far better, in the author's opinion, to have a trial made on one eye only at a time, and that the worst, where both are affected and one is still useful, than to subject both to the same risk; for the sympathy between them is so considerable, that if an inflammatory process from any constitutional or accidental cause should show

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This to be lamented, because of the ill-success of many operations, even when dexterously performed. Causes of ill-success.

Illustrated.

Hence all operations should be had recourse to with caution.

* Beytrage zur Chirurgie und Augenheilkunst. Von Franz Reisinger, &c. Göttingen, 1814.

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itself in either, the other would be sure to associate in the morbid action.

Usual modes of operating.

The usual modes of operating for the cure of a cataract are three; that of couching or depression: that of extraction: and that of, what is called, absorption*. The first was well known to the practitioners of Greece and Rome; and is ably described by Celsus, who advises, in cases where the lens cannot be kept down, to cut it into pieces with the sharp-edged acus or needle, by which mean it will be the more readily absorbed. And, from this last remark, we have some reason for believing that even the third of the above methods, that of absorption, was also known at the same time; as it is probable, indeed, that the second, or the operation by extraction, was likewise; since we find Pliny recommending the process of simple removal or depression in preference to that of extraction or drawing it forth; "squammam in oculis emovendam potius quàm extrahendam"†, which Holland has thus honestly, though paraphrastically translated "a cataract or pearl in the eye is to be couched rather, and driven down by the needle, than quite to be plucked forth."

Couching; or depression. Extraction. Absorption. Couching known to the Greeks and Romans: Probably absorption: and extraction.

Depression and extraction known immemorially in the East.

In the East, however, both these plans appear to have been pursued through a much longer period. Both are noticed by the Arabian writers in general, and especially by Avicenna and Rhazes; and both seem to have been practised from time immemorial in India, and, according to the account of the cabirajas, with wonderful success. Dr. Scot was informed by one of the travelling operators, who, however, spoke without a register, that in the operation of depression this success was in the proportion of a hundred who were benefited to five who obtained no advantage whatever.

Willburg's operation of reclination.

Upon the ordinary operation of depression M. Willburg seems to have made a considerable improvement, by pressing the cataract backwards and downwards into a particular position where it is less likely to ascend or touch

* Guthrie, Lect. on the Operative Surgery of the Eye, p. 184, 8vo. 1823.
† Nat. Hist. Lib. XXIX. Cap. I.

the retina; and to this mode of operation is given the name of RECLINATION.

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The operation of extraction seems to have derived no small improvement from the method of Sir William Adams, who, after detaching the cataract, first passes it through the opening of the pupil into the interior chamber by means of his needle, and then extracts it by an opening on the outer side of the cornea, instead of by one in its interior part.

Method of extraction improved by Adams: and how.

The simplest and least irritating of these operations, however, is that by absorption, as it is now commonly called, as it was named precipitation by Maître-jan*, on his first noticing the disappearance of portions of the opake lens; but which in effect is neither absorption nor precipitation, but SOLUTION, or dissolution, as Mr. Pott correctly described it. But it should be known to the operator that while the solvent power of the aqueous humour is wonderfully active, that of the vitreous is weak and inconsiderable: and hence the solvent or absorbent plan, first practised by Buchhorn, and since in our own country by Sir William Adams, consists in dividing the cataract, after its separation, into small fragments, and passing them with the needle by which they are thus divided, through the pupil into the anterior chamber, which constitutes the seat of the aqueous humour, apparently in perfect coincidence with the method first practised by Gleize, and since recommended by Richter†. The fragments thus deposited are usually dissolved in a few weeks; and where the cataract is fluid they have often been dissolved and absorbed in a few seconds; and sometimes even before the needle has been withdrawn. The division is here made through the cornea, previously illined with belladonna to dilate the pupil, and it is to this method of operating that M. Buchhorn gave the name of CERATONYXIS‡. The first inventor, however, of the plan in its simplest state was Conradi of Nordheim.

Method of absorption most adviseable: and why.

The precipitation of Maître Jan.

Solvent power of the aqueous humour highly active: that of the vitreous humour weak.

Principle of this method as practised by Adams.

Cataract sometimes very rapidly dissolved and carried off.

Ceratonyxis.

* Traité des Maladies de l'Oeil. Edit. sec. Troyes, 1711.

† Chirurgische Bibliothek. Band. x.

‡ Buchhorn de Keratonyxide. Halæ, 1806.

SPECIES X.

PAROPSIS SYNIZESIS.

Closed Pupil.

DIMNESS OR ABOLITION OF SIGHT FROM CONTRACTION OR OBLITERATION OF THE PUPIL.

Gen. I. Spec. X. Origin of the specific term.

THE term SYNIZESIS is derived from *συνίζω*, "consido coëo, coalesco"; and was used among the Greek grammarians, before it obtained an introduction into the medical vocabulary, to signify the coalescence of two or more syllables into one. This species exhibits two varieties:

α Simplex. Simple closed pupil.	Simple closure of the pupil.
β Complicata. Complicated closed pupil.	Closure of the pupil complicated with cataract, or opake cornea.

α P. Synizesis simplex. Simple closed pupil.

The pupil becomes closed or obliterated from a gradual contraction and, at length, coalition of the muscular fibres of the iris; from inflammation of the surrounding membranes; or from protrusion of the iris. In all these cases it is a SIMPLE OBLITERATION OF THE PUPIL. It is

β P. Synizesis complicata. Complicated closed pupil. Atresia iridis of Schmidt.

COMPLICATED when the obliteration is combined with an opacity of the cornea, or with a cataract. When the disease is an effect of inflammation, it forms the ATRESIA IRIDIS of Dr. Schmidt of Vienna, who further subdivides it into *complete*, *incomplete*, and *partial*, according as the vision is totally destroyed, impaired, or confined to a part of the pupil *.

Form of the pupil changed by the disease.

The natural form of the human pupil is circular, this being the natural form of the fine fringe of the iris by

* Ueber Nachstaar und Iritis Nachstaar operationen. 4to. Wien. 1801.

which it is surrounded. But in a very few instances the fringe, or rays, of the iris has evinced a different figure, and the pupil, in consequence, has been found oblong, or heart-shaped *. The first has occurred most frequently: and according to Albinus has sometimes preceded loss of vision †. Block gives an instance in which the disease was congenital and hereditary ‡.

Gen. I. Spec. X. β P. Synizesis complicata. Complicated closed pupil. Has been found congenital and hereditary.

If the iris contract irregularly, sometimes only a few of its fibres spread across the pupil, while others are retracted: and hence we have examples of double or more than double pupils, though of smaller dimensions than the natural circle. Solinus gives an instance of two pupils hereby produced §, and Janin of not less than five ‖. Dr. Plenck, who very unnecessarily multiplies diseases, confines the term synizesis to a total contraction of the pupil; and makes its partial contraction a distinct affection, which he calls *myósis:* and the second or complicated variety, another distinct affection which he denominates *synechia.* But this is to perplex rather than to simplify the subject.

Double pupils how produced. Pupil five fold. Complicated closed pupil. Myósis of Plenck. Synechia, what.

Medicines in this disease are of little avail. In the first variety an external application of the tincture of belladonna, or a solution of stramonium, which is said to answer the same purpose ¶, has occasionally effected a cure by destroying the contractile action; and dilute solutions of brandy, camphor, or sulphate of zinc, by their tonic or stimulant power. When the disease does not yield to this mode of treatment, or consists of the complicated variety, it belongs manifestly to the art of surgery, and its removal must be sought for in books on that subject: among the best of which may be mentioned, Mr. Guthrie's Lectures on the Eye lately published, and Professor Beer's Essay on Staphyloma, and artificial pupil,

Medical treatment of the first variety. The second appertains to surgery.

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* Eph. Nat. Cur. Dec. III. Ann. VII. VIII. Obs. 21.

† Anat. Acad. Lib. VI. cap. 3. ‡ Medicinische Bermerkungen, p. 1.

§ Vide Marcel. Donat. Lib. VI. cap. ii. p. 619. ‖ Memoires, &c.

¶ Annual Report of the Liverpool Institution for Diseases of the Eye. By Alexander Hannay, M.D. 1822.

GEN. I. SPEC. X. β P. Synizesis complicata.

published in 1804 *, and his Doctrine of the Diseases of the Eye published in 1817 †. According to the nature of the coalition, Beer employs three varieties of operation, incision, excision, and separation, which he distinguishes by the names of COROTOMIA, CORECTOMIA, and CORODIALYSIS. The first is the simplest, and that most usually had recourse to. In the second, an incision being made with a cataract knife, close to the edge of the cornea, and not larger than the third part of its circumference, the iris, if it protrude, is laid hold of by the hook; or if no protrusion take place, the hook introduced through the incision, is made to lay hold of the pupillary edge of the iris, which drags it through the wound when a sufficient portion of it is removed by a pair of scissors. In the third method, which is that formerly proposed by Dr. Reisinger, the operation is performed by a double hook or hook forceps ‡.

Complicated closed pupil.

Corotomia, corectomia, corodialysis.

The last, Reisinger's method.

SPECIES XI.

PAROPSIS AMAUROSIS.

Drop Serene.

DIMNESS OR ABOLITION OF SIGHT WITH AN UNALTERABLE PUPIL, USUALLY BLACK AND DILATED; BUT WITHOUT ANY OTHER APPARENT DEFECT.

GEN. I. SPEC. XI. The gutta serena of the Arabians.

THIS is the GUTTA SERENA of the Arabic writers, whence the term "Drop Serene" of our own tongue; terms we

* Amicht der Staphylomatoien Metamorphosen des Anges, und der Künstlichen Pupillen bildung.

† Lehre von der Augenkrankheiter, &c. ut suprà.

‡ See also D. Weller's Treatise Ueber künstliche Pupillen, und eine besondere Methode, diese fertigen; published in Langenbeck's Neue Bibliothek. B. II. St. 4. See also Dr. Schlagintweit Ueber den gagenwärtigen Zustand der künstlichen Pupillenbildung, &c. München 1818.

have already explained under PAROPSIS CATARRACTA. Milton is well known to allude to this affection in his beautiful address to light, as he does also to the cataract by him called *suffusion*, as the Latins call it *suffusio:* but it is singular that, in the course of this allusion, he seems doubtful as to which of the two diseases he ought to ascribe his own blindness:

Gen. I. Spec. XI. Paropsis Amaurosis. Drop serene. Confounded by Milton with cataract or suffusion.

> Thee I revisit safe
> And feel thy sovereign vital lamp; but thou
> Revisit'st not these eyes, that roll in vain
> To find thy piercing ray, and find no dawn.
> So thick a DROP SERENE has quench'd their orbs,
> Or dim SUFFUSION veil'd *.

Origin of the specific term. Ordinary cause.

The term AMAUROSIS is derived from the Greek ἀμαυρὸς, "obscurus, caliginosus, opacus". The most common cause is a paralysis of the retina, usually in conjunction with a paralysis and dilatation of the iris. Occasionally, however, the iris is rigidly contracted; its debility being accompanied with great irritability; and hence, offering two varieties; to which a third may be added, from the disease assuming, at times, an intermittent type.

α Atonica.	With permanent atony, and
Atonic amaurosis.	dilatation of the pupil.
β Spasmodica.	With a permanent contraction of the pupil.
Spasmodic amaurosis.	
γ Intermittens.	With periodical cessations
Intermittent amaurosis.	and returns.

Other modifications noticed by some writers;

It would be easy to admit other varieties if we were to attend to all that has been written on the subject, and adopt all the opinions that have been delivered; for we are told of cases in which the pupil has not been permanently immoveable, but has contracted on exposure to an intense light †; and of others in which the pupil instead of being black has evinced a pale or nebulous appear-

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* Par. Lost, III. 21.

† Caldani ad Haller. v. Richter, Nov. Comm. Soc. Goett. Tom. IV. 77. Hey, Medic. Observ. and Inquir. Vol. 5. p. 1.

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but mostly resolvable into different stages of the one or other of the above.

ance*. In the first of these exceptions the disease has not acquired completion: and the other is allowed for occasionally in the definition. It will often be found nothing more than an incipient cataract.

Mydriasis of Plenck, what.

Plenck makes a distinct disease of an unalterable pupil *with* or *without* injury of the vision under the name of MYDRIASIS. When accompanied with injured vision, it is evidently a variety of amaurosis; and it is questionable whether an unalterable pupil is ever to be traced without defective vision.

Found as a symptom in some other species of paropsis.

Under the one or other of these varieties amaurosis is also found, occasionally, as a symptom or sequel in hysteria, syspasia, lues, and local rheumatism.

Pin or pin-eye, what.

It is probably to the spasmodic variety of this species, that Shakspeare chiefly alludes by the term *pin* or *pin-eye*, the pupil being sometimes contracted to nearly the diameter of a pin's head; though the synizesis is equally entitled to the name. I have quoted one example already under P. Caligo, which he calls web-eye: another is contained in the following couplet:

——Wish all eyes
Blind with the PIN and WEB.

Diagnostics.

The existence of an amaurosis is known by the specific symptoms of the pupil being peculiarly black and dilated,

Commencement and progress.

and the want of contractibility in the iris on exposure to a strong light. Its commencement is often accompanied with pain in the head, which diminishes as the disease increases. Yet it occasionally steals on without pain; and if it be confined to one eye only, it will sometimes exist for months or perhaps years, without a person's being sensible of it; as, in such cases, it is only traced by the patient's accidentally closing the sound eye alone and then finding himself in darkness, or by some other incident.

Confounded occasionally with black cataract:

The black cataract has sometimes been confounded with it, or mistaken for it, of which we have just noticed an instance in Milton, as has also that modification of the

* Richter, Nov. Com. Soc. Goett. Tom. IV. p. 77. Goett, Cases, Ed. II. p. 52.

capsular cataract, in which the posterior lamina of the capsule is alone opake.

Gen I. Spec. XI. Paropsis Amaurosis. Dropserene, with capsular cataract.

The occasional cause is, therefore, for the most part incapable of being followed up *. Richter contends that it is often dependent upon a dyspeptic state of the digestive organs; and it has at times occurred suddenly upon a plethoric state of the vessels, apoplexy, cephalæa, a blow on the head, or some other injury of the sensorium. It has sometimes succeeded to paropsis *lucifuga*, and sometimes purulent ophthalmy. From the stronger stimulus of the light, it is more frequent among soldiers or labourers in tropical than in temperate climates. It is also well known to be temporarily produced by the juice of the solanum or atropa *Belladonna;* and in one or two instances permanently from an accidental immission into the eye of the poison of a serpent or spider †. It has likewise been induced by a flash of lightning, by insolation or undue exposure to the rays of the sun; by a suppressed catarrh, suppressed hemorrhages, or venesection when rendered habitual ‡; by suppressed exanthems, and eruptions of various kinds, especially porrigo, herpes, and scabies; by some sudden strain or other violence; or by some overwhelming passion of the mind as wrath or terror §. It has also appeared as a sequel or metastasis upon fevers; and succeeded to the use of poisonous cosmetics. There are a few cases in which it has proved hereditary ‖.

Occasional cause.

Sometimes a sequel or metastasis of other diseases.

Has proved hereditary.

Professor Beer ¶ is minute in describing the modifications that proceed from plethora, and a morbid state of the digestive organs; but gives a still more copious detail of that which depends upon local rheumatism, and which he, hence, calls the rheumatic amaurosis. In this he remarks that the pupil is perfectly clear, and the iris unalterable,

Rheumatic amaurosis of Beer.

* Lehre von den Augenkrankheiter, &c. von. G. J. Beer, 8vo. Wien.

† Bosman, Beschreibung von Guinea, p. 369. Boyle, Tract. de. Concord. Medic. Specific.

‡ Heister, Wahrnehm. B. II. p. 441. Bresl. Samml. 1726. I. 503.

§ Herculanut, Comm. in Rhazis. Lib. IX. Richter. L. c. p. 81. Schaarschmid, Med. und Chir. Nachrickten III. n. 18.

‖ Redlin, Curat. Med. Millenar. n. 822. Oeheme de Amaurosi, p. 20.

¶ Lehre von den Augenkrankheit. &c. ut suprà.

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slightly dilated, and thrust a little nearer the nose and the eye-brow than naturally, so as to be in a small degree displaced inwards and upwards. The tears flow on slight occasions, and the light is often troublesome, accompanied with an aching pain in the eye-ball. The movement of the eye is impeded, and more in one direction than in others. This modification rarely proceeds so far as to perfect blindness.

Prognostics.

The prognostics are generally unfavourable, except where the disease exists as a symptomatic affection. Where we can decidedly trace its existence to plethora whether entonic or atonic, or to some violent injury to the head,

Treatment. Bleeding.

bleeding and purgatives are clearly indicated: and though they have frequently failed in the former, they have often proved of the utmost success in the latter, when pursued with great activity. Where however there is great weakness in the exquisitely tender organ of the eye, palsy is often induced before these evacuations can relieve the oppression, which is indeed a frequent cause of their failure in

Emetics.

such cases. In the spasmodic variety active emetics frequently repeated, and resolutely persevered in at each time till the system becomes weakened, as in the treatment for the epidemic ophthalmy, have certainly been at times

Blisters and sternutatories.

found successful. Blisters and sternutatories also demand attention: the first should be applied to the temples; the second is best formed of turbeth mineral with about ten times its proportion of mild snuff, or any other light powder. The vapour of ammonia, ether, or camphor, mixed with hot water, has sometimes also afforded benefit: as

Moxa.

has probably the use of moxa frequently repeated, so warmly recommended by Baron Larrey. "By this remedy," says he, "not only has the progress of amaurosis been arrested, but in some cases removed, even where the blindness was complete."*

Diaphoretics. Dover's powder with blisters.

The rheumatic form is frequently treated with success, and principally by diaphoretics. Beer employs guaiacum and camphor combined, during the day, and Dover's pow-

* Recueil de Mémoires de Chirurgie, &c. Paris. 8vo. 1821.

der at night: and with these he has recourse also to blisters, placed in succession behind the ear, on the temple, and over the eye-brow, so as to maintain a catenation of counter-irritative actions. Both this and the plethoric modification, in which local bleeding is of the utmost benefit, are frequently hurried on to a complete developement of disease, and a total insensibility of the retina by stimulants, and particularly by galvanism and electricity.

Gen. I. Spec. XI. Paropsis Amaurosis. Drop serene. Treatment. Stimulants injurious in several modifications. Stimulant vapours.

Where it has followed on repelled eruptions, it has also been occasionally found to yield to setons and blisters, or a restoration of the suppressed efflorescence; and, as in other diseases, what has sometimes proved the source of its production, has been found its best remedy; so that the cause has become the cure. Thus it has at times yielded to the violence of a fever, to that of a sudden blow on the head, to a strong light, to a paroxysm of convulsions. Electricity, and especially voltaism, has probably been serviceable in some instances; at least the assertions to this effect are very numerous, though in various cases both these have sometimes been altogether unsuccessful, and, as just observed, sometimes highly mischievous. Nor is the magnet without its recommendations, having been applied to the upper part of the spine, while minute bags filled with iron filings were placed on the eyes*; and, in an imperfect case of the complaint, Weber conceives he derived benefit. The chief dependencies besides these have been on camphor, cajeput, musk, mercury, iron, bark, arnica, and externally the pulsatilla nigra. Of the arnica or German leopard's bane, Pellier, as well as Collier, speaks warmly. The latter recommends it in all nervous atonies, whether general or local. He employed the flowers of the plant in decoction† in the proportion of about half an ounce to a pint of the strained liquid, which

Setons, when useful. The occasional cause in some cases, an occasional cure in others.

Electricity.

Magnetism.

Internal tonics and stimulants.

* Würkung des Kunstlichen Magnets, &c. p. 24, 25. Hell. v. Nootnagel, I. c. § 22. Eph. Nat Cur. Dec. II. Ann. v. Obs. 247.

† Prodigious Enlargement and Dropsy of the Eye. Dr. Layard. Phil. Trans, 1757-8. Vol. 50. p. 747.

GEN. I. SPEC. XI. Paropsis Amaurosis. Drop serene. Treatment.

may be taken in a day or a day and a half. Richter, Schmücker and other German writers declare it to be of no avail. The pulsatilla is certainly better entitled to attention. "I would recommend it", says Dr. Cullen with his usual liberality, "to the attention of my countrymen, and particularly to a repetition of trials in that disease so frequently otherwise incurable, the amaurosis. The negative experiments of Bergius and others are not sufficient to discourage all trials, considering that the disease may depend upon different causes, some of which may yield to remedies though others do not."* When distilled with water it gives forth a terebinthinate substance resembling camphor, which necessarily possesses a stimulant, and hence a medicinal power. Whence the euphrasia *officinalis*, or eye-bright, obtained the character it once possest as a specific in this disease, it is difficult to say. By Hildanus and Lientaud, however, it was chiefly confined, even in its zenith of popularity, to the amaurosis of old age. Its chief sensible quality is that of being a mild astringent. Rue, which rivalled it at one time, and by Milton is put upon a level with it, has far better pretensions when used externally in the form of a potent infusion; for it unites the properties of volatile pungency and bitterness: both which, as concentrated in strong chamomile tea, I have occasionally found highly serviceable in an incipient state of this disease produced by weakness; though, as already remarked, none of these should be employed in several forms of the disease.

Pulsatilla intitled to further trials.

Euphrasia little entitled to the name.

Rue.

Narcotics.

The narcotics, if they have ever been serviceable in any way, can only have been so in the spasmodic variety. Of these aconite has been chiefly popular in Germany: it has been strongly recommended by many writers of reputation, and has sometimes been given by gradual augmentation to the amount of a drachm daily†. Chevillard combined the use of antimonials with blisters: but cold

Union of antimonials and blisters.

* Mat. Med. Vol. II. Part II. Ch. v. p. 216.

† Beobachtungen und Untersuchungen, &c. Band. II. Nuremb. 1769.

applied externally, and cold bathing as recommended by Warner, will often be as much entitled to our attention, as any other process.

GEN. I. SPEC. XI. Paropsis Amaurosis. Drop serene. Treatment.

Dr. Powell relates a case of sudden loss of vision, preceded by an acute cephalæa, in which an emetic was found, during the act of vomiting, abruptly to restore sight to the right eye (for both were affected) with a sensation as if a flash of lightning had taken place; but the vision was soon again lost. More than a twelvemonth afterwards the patient returned to emetics; when, after the use of the second, the pupils of the eyes recovered the power of dilating and contracting on exposure to light, and preserved it till death, but the power of vision was not restored. During the whole of this case of blindness, the sense of hearing was peculiarly acute*. The discovery of Dr. Bock, that a few nervous filaments appertaining to the great sympathetic nerve are thrown off while this nerve is within the cavernous sinus, and entering the orbit unite with the lenticular ganglion, will enable us satisfactorily to account for these remote influences; the ear, as is frequently the case, sympathising with the morbid state of the eye either directly or reversely†.

Instance of temporary scintillation from emetics:

And of partial recovery of the motory power of the iris.

Hearing sometimes acute.

Explained.

SPECIES XII.

PAROPSIS STRABISMUS.

Squinting.

OPTIC AXES OF THE EYES NOT COINCIDING ON AN OBJECT.

GEN. I. SPEC. XII.

THIS disease, in colloquial language now called *squinting*, was formerly denominated *goggle-eye*, whence the word

Formerly named goggle-eye:

* Trans. Med. Vol. v. p. 226.

† Beschreibung des fuensten Nerven paares und seiner Verbindungen mit underen Nerven, &c. von D. A. Carl Bock. Leipsic, 1817.

GEN. I. SPEC. XII. Paropsis Strabismus. Squinting.

goggles is still applied to the glasses which are used by persons affected with the complaint. The French call these glasses *masques à louchette;* literally *squinting-guards.* The technical term STRABISMUS, is derived from the Greek στραβὸς, "tortus oculis", or "sight-twisted".

whence the term gogles, by the French called masques à louchette.

Origin of the technical term.

Physiology.

The optic axis is an imaginary line passing from the centre of the vitreous humour, lens, and globe of the eye to the object of vision. In perfect vision the optic axis of the one eye is in unison with that of the other; and, consequently, they converge or coincide at the same point; and the object which would otherwise appear double, as being seen by each eye, is contemplated as single. In order to this coincidence, the muscles of each eye must constantly assume the same direction, their position and configuration be precisely alike, and the sight be of an equal power and focus: a deviation from each of which postulates must necessarily produce squinting, or an inaccordant action of one eye with the other. From common and early habit we acquire an equal command over the muscles of both, and are able to give them any direction, or power of direction, and to fix them upon any object we please. And such is the force of habit that they at length involuntarily associate in the same action, and it is difficult for us to give to the one eye a different direction from that of the other; or, in other words, to make their optic axes diverge instead of converge. In persons born blind no benefit can be derived from this unity of action, and hence it is never attempted; and the muscles being never subjected to discipline, the eye-balls roll at random, and wander in every direction. In consequence of which one of the most difficult tasks to be acquired by such persons, after obtaining sight, is that of keeping their eyes fixed, and giving the same bearing or convergent line to each. And hence, again, they see things double at first, and in a state of great confusion.

Why objects appear single though seen by both eyes.

Both eyes from habit, associate in the same action: and hence difficult to give them a different direction.

No such association in persons born blind: whence the difficulty of fixing both eyes to the same object on their obtaining sight.

A like want of habit where one eye is naturally stronger than the other,

When one eye is naturally stronger, or of a more favourable focus, or more frequently employed than the other, as among watch-makers and jewellers, the latter,

from comparative neglect, relapses into an undisciplined state, and less readily obeys the control of the will. Its muscles do not assume the same direction as those of the eye employed; and if they do, in the two former cases, the object still appears double; and hence, the neglected, or weaker eye, wanders and stares at one or at various objects, while the eye relied upon is fixed upon some other. And it is this divergence of the optic axes, this inaccordance of direction, or looking at different objects at the same time, that constitutes the present disease.

GEN. I. SPEC. XII. Paropsis Strabismus, Squinting.

and hence chiefly or alone trusted to: whence the weaker eye wanders from the proper direction. This inaccordance of direction constitutes squinting.

It is obvious, therefore, that strabismus may have three varieties:

α Habitualis. Habitual squinting.	From a vitiated habit; or the custom of using one eye, and neglecting the other.
β Atonicus. Atonic squinting.	From debility of the affected eye, whence the sound eye possesses a different focus and power of vision; and is alone trusted to: in consequence of which the weak or neglected eye insensibly wanders as already stated.
γ Organicus. Organic squinting.	From the eye being differently constructed in form or position.

The FIRST of these VARIETIES constitutes the NYSTAGMUS of Dr. Plenck, and its cause is sufficiently obvious. In the SECOND the sound eye is alone trusted to, because it is the only eye on which any dependence can be placed; and hence the weak eye, neglected by the will, wanders insensibly, as in the preceding order we have seen that any one of the mental faculties will wander in like manner under the same want of discipline. In the THIRD VARIETY the difference of form or position respects the situation or figure of the one eye compared with the other, or of the particular parts of the one eye compared with those of the other: in consequence of which the one is favoured and the other thrown into disuse.

α P. Strabismus habitualis. Habitual squinting, the nystagmus of Plenck.

β P. Strabismus atonicus. Atonic squinting.

γ P. Strabismus organicus. Organic squinting.

Gen. I. Spec. XII. γ P. Strabismus organicus. Organic squinting.

In this last variety a complete cure is hardly to be expected. In the second it is attended with considerable difficulty; and in the first is rather to be accomplished by what, in mania, we have called *moral* treatment than by medicine. A constant and resolute exertion on the part of the patient to obtain a command over the weak or irregular eye is of absolute necessity, while the neglected eye itself, if weak, should be strengthened by tonics and gentle stimulants. Goggles, though often recommended, are seldom serviceable, and especially to children; for although the sight must hereby be restrained in each eye to a common line, the child will still use the sound eye alone, and leave the irregular eye unemployed. It is a better plan to affix some object near the orbit of the affected eye at such a distance that it may constantly catch and draw off the pupil from the inner angle to the outer. But the method that I have myself found by far the most effectual, is to blindfold the sound eye with a blink for a considerable part of every day; and thus force the affected eye into use, and a subserviency to the will. I recommend this simple plan most strongly, and especially in the case of children; and may venture to predict that it will be sure to succeed in the first variety of the disease, that of habit, and frequently in both the others.

Mode of treatment.

Goggles seldom serviceable.

A more effective plan proposed.

GENUS II.

PARACUSIS.

Morbid Hearing.

SENSE OF HEARING VITIATED OR LOST.

GEN. II. Origin of the generic term.

PARACUSIS is a term of Hippocrates derived from παρακούω, "perperàm, depravatè, vitiosè audio". The mechanism of the ear is as complicated as that of the eye, and as admirably adapted, in all its parts, to the perfection of the sense which constitutes its function. Its lobes, its entrances, its openings, its various drums, its minute and multiplied foramina, its delicate bones, all contribute to one common effect. Even the surrounding bones, and still more than this, the teeth, are, in no small degree, auxiliary to the same object: as the experiments of M. Perolle, given in the fifth volume of the Turin Transactions have abundantly established: as they have, also, that bone in general is a far better conductor of sound than air, alkohol, or water.

Physiology.

Bones surrounding the ear, and even the teeth, auxiliary to hearing.

We may hence learn one very important use of the four minute bones deposited in the posterior chamber of the tympanum, the loss of any one of which impairs the hearing, and, in some instances, has produced total deafness: of which we have a striking proof in the case of a lad, described in the Philosophical Transactions, who had parted with the incus on one side, and both the incus and malleus on the other, by means of an ulcerated sore throat that opened a passage from the fauces into each ear, and through which the bones were discharged. The tympanum, on the boy's recovery, seems not to have lost its vibratory power, for he was sensible of violent or sudden sounds, but altogether insensible to conversation, and

Hence one use of the bones in the cavity of the tympanum.

Case in illustration.

GEN. II. Paracusis. Morbid hearing.

apparently as deaf in the ear that had only parted with the incus as in that which had parted with both bones*.

Diseases of the ear often bear an analogy to those of the eye. Illustrated.

From the complicated organism of the ear it follows necessarily that, like the eye, it must be subject to a great variety of diseases; while many of the diseases of the one sense must bear a striking analogy to those of the other. Thus painful and obtuse hearing and deafness may be well compared with painful and obtuse vision and blindness. As the eye is at times affected with illusory objects, so is the ear with illusory sounds; and as, when the optic axes do not harmonize, as in strabismus, the same object may be seen double, so may the same sound be heard double when the action of the one ear is inaccordant with that of the other.

Sympathy between the senses of sight and hearing. Alternation of deafness and blindness.

And hence it is not at all to be wondered at that a peculiar degree of sympathy should exist between these senses, and the state of the one be frequently affected by that of the other. Bartholine gives a case in which deafness and blindness alternated with each other†, and we shall presently have to observe that a temporary affection of the eyes may sometimes be produced by particular noises.

From the depth of the organ of hearing the seat of disease often less known than in disorders of vision. Whether the cochlea be the most discriminative part of the organ or the membrana tympani?

As the organ of the ear, however, is less exposed than that of the eye, we are far less acquainted with the immediate seat of its diseases, and even with the exact bearing which every particular part sustains in the general phænomenon of hearing. It was at one time supposed that the nicest power of discriminating sounds, or, in other words, that accuracy of distinguishing which constitutes what is called a musical ear, is seated in the cochlea; birds, however, whose perception is exquisite, have no cochlea. It has since been conceived by Sir Everard Home that it is the membrana tympani in which this fine feeling is peculiarly lodged‡, and that it depends upon the muscularity of this membrane: yet the same feeling has remained, and in a high degree, in persons whose membrana tympani has been ruptured.

* Vol. LI. No. 50. 1761. † Epist. Cent IV. No. 40.
‡ Phil. Trans. Year 1800.

Paracusis as a genus includes the following species: Gen. II. Paracusis. Morbid hearing.

1. PARACUSIS ACRIS. ACRID HEARING.
2. ———— OBTUSA. HARDNESS OF HEARING.
3. ———— PERVERSA. PERVERSE HEARING.
4. ———— DUPLICATA. DOUBLE HEARING.
5. ———— ILLUSORIA. IMAGINARY SOUNDS.
6. ———— SURDITAS. DEAFNESS.

SPECIES I.

PARACUSIS ACRIS.

Acrid Hearing.

HEARING PAINFULLY ACUTE AND INTOLERANT OF THE LOWEST SOUNDS.

Gen. II. Spec. I. Occurs idiopathically in nervous idiosyncrasies.

This occurs occasionally as an idiopathic affection in nervous and highly irritable idiosyncrasies, and bears a striking analogy to that acritude of sight which we have noticed under paropsis *lucifuga*. It is the *hypercousis*, or, as it should rather be, the *hyperacusis* of M. Itard, who also regards it as an idiopathic affection in various cases *.

Hypercousis of Itard.

It depends upon a morbid excitement, sometimes of the whole of the auditory organs, but more generally of some particular part, as the tympanum, or the labyrinth, and particularly the cochlea, or some of the internal canals. In many instances it seems confined to the branches of the nerve; and Bonet gives an instance of it from the very singular cause of a triple auditory nerve formed on either side †; in which case there is sufficient ground for its idiopathic origin. It is found more fre-

* Traité des Maladies de l'Oreille, et de l'Audition. 2 Tomes, 8vo. Paris, 1821.

† Sepulchr. Lib. i. Sect. xix. add. Obs. 7.

Gen. II. Spec. I. Paracusis acris. Aerid hearing.

quently however as a symptom of ear-ache, head-ache, epilepsy, otitis, cephalitis, and fevers of various kinds.

Found as a symptom in various diseases.

The sensation is sometimes so keen as to render intolerable the whisperings of a mere current of air in a room, or the respiration of persons present, while noises before unperceived become highly distressing.

Sensation sometimes intolerably keen.

I have at this moment before me a most impressive description of this effect, in a letter from a young lady of about twenty-eight years of age, of an irritable habit, great genius, and a highly cultivated mind, who about a twelvemonth ago was attacked with a cephalitis which proved severe and alarming. The brain has hereby been weakened, but the mental powers are rendered more acute; and the external senses, especially those of hearing and seeing, strangely sympathize with each other. "You think me", says she, in this letter, "unfit for study, but study I must, whether I am fit for it or not, otherwise my mind preys upon itself, and no power can prevent my thinking, which is almost as bad as reading. Last night I was kept awake for some hours by so powerful an excitement of the brain that I really thought it would have taken away my senses. The pain is very acute, but I do not mind that so much as the distraction which accompanies it. It usually comes on with a most painfully quick hearing. I feel as if the tympanum was stretched so tight as to make the least sound appear almost as loud as thunder; and a loud noise is just as if I received a blow quite to the centre of the brain. This really is not imagination but actual sensation. Moreover a noise affects my eyes so much that I am obliged to darken my room when at any time I am under the necessity of hearing any thing like a noise: *a loud sound affects my eyes, and a strong light my ears.* They seem to act reciprocally. My head is certainly not so bad, nor any thing like it, as it was at Clifton, but still the sudden attacks I have from over-exertion of the mental powers, or upon any other excitement, make me always fearful I shall lose my senses."

Strikingly illustrated.

Singular sympathy with the sense of sight.

Injections of warm water, or a few drops of almond oil dropped into the ear will occasionally succeed in affording relief, by relaxing the spastic tone of the vessels. But cold water, and cold applications about the ear, and even pounded ice where there is no tendency to a periodic rheumatism, by directly inducing torpitude, will at times, have a better effect: laudanum may also be introduced into the ear, and a blister be applied to its immediate vicinity.

Gen. II. Spec. I. Paracusis acris. Acrid hearing. Remedial process.

SPECIES II.

PARACUSIS OBTUSA.

Hardness of Hearing.

HEARING DULL AND CONFUSED; AND DEMANDING A CLEAR AND MODULATED ARTICULATION.

Gen. II. Spec. II. Causes. Nervous deafness, what.

THIS may proceed from organic defect; from local debility, in which case it is called NERVOUS DEAFNESS; or from some accidental obstruction in the external tube or passage, as that of mucus, wax, sordes, or any other extrinsic body: or, in the internal or Eustachian tube, from mucus, inflammation, or ulceration and its consequences. It is also found occasionally as a symptom or sequel in various fevers, in hemiplegia, apoplexy, otitis, lues, and polypous caruncles or concretions in the passage of the ear: and has followed on drinking cold water during great heat and perspiration of the body, of which several examples are given in the Ephemerides of Natural Curiosities. Among the cases of organic defect one of the least common is atresia, or imperforation: yet Albucasis* gives us an instance of this, as does Bartholine† and

Found as a symptom in various diseases.

Sometimes produced by imperforation.

* Vide Marcell. Donat. Lib. VI. Cap. II. p. 619.

† Hist. Anat. Cent. VI. n. 36.

GEN. II. SPEC. II. Paracusis obtusa.

Henckel *. And among the more singular obstructions of an accidental kind may be mentioned insects and the grubs of insects or worms. Bartholine mentions a leech which was once found to have burrowed in the ear: and Walker a small stone which had unaccountably become lodged there and was discharged by a fit of sneezing †.

Hardness of hearing. Sometimes by insects. Medical treatment.

The cure must depend upon the nature of the cause. All foreign bodies must be carefully removed or destroyed, and the cavity of the ear be washed by means of a syringe. Accumulations of wax may be softened by oil of almonds and alkohol, which will dissolve whatever resinous part it possesses; and a like inunction will be found the best means of destroying insects. Atonic or nervous deafness will often bid defiance to our utmost exertions: but it will sometimes yield to local stimulants and tonics; of the former, are alkohol, ether, camphorated spirits, essential oil of turpentine combined with olive oil, and the tinctures of the gum-resins, as myrrh, amber, kino, balsam of Tolu, and blisters about the ear. Of the latter, cold water, and solutions of alum, white vitriol or other metallic salts.

Hearing trumpet.

Where hardness of hearing is habitual and cannot be radically cured, we can only endeavour to diminish the evil by advising a hearing trumpet, which is, in fact, an instrument formed upon the principle of imitating the cavities of the labyrinth of the ear itself, and the object of which is to collect a large body of sonorous tremors, and send them to the tympanum in a concentrated state, by means of a convergent tube, or, in other words, to increase as much as possible the vibratory power of the sound. Now sound is well known to be propagated in straight lines, and hence persons partially deaf will always hear most distinctly when directly opposite the speaker. For the same reason the trumpet itself should be formed as nearly as possible in a straight line; though we are sometimes, for the sake of convenience, obliged to deviate from this direction, and to bend the tube into the

Principle of its action.

* N. Anmerk. 1. † Observ. Medico-Chirurg. rar. 8vo. 1718.

segment of a circle, by which some degree of power is always lost. The metal of which the tube is made should be that which is found most sonorous, or, in other words, which most completely reflects, instead of absorbing, the sound; and while the funnel or larger aperture is as wide as possible, the extreme end of the pipe cannot be too small. M. Itard has found that a parabolical figure has no advantage over a conical or pyramidal tube: but that the tube is assisted in producing distinctness of sounds by an insertion into it of slips of gold-beater's leaf, at proper distances, in the manner of partitions *.

Gen. II. Spec. II. Paracusis obtusa. Hardness of hearing. How formed most advantageously.

SPECIES III.

PARACUSIS PERVERSA.

Perverse Hearing.

THE EAR ONLY SENSIBLE TO ARTICULATE SOUNDS WHEN EXCITED BY OTHER AND LOUDER SOUNDS INTERMIXED WITH THEM.

Gen. II. Spec. III. Physiology.

THIS is a very extraordinary hebetude of the organ, though it has occasionally been met with in most countries. Where it exists, the ear, as in other cases of imperfect hearing, requires to be roused, in order to discriminate the articulate sounds addressed to it, but finds the best excitement to consist in a great and vehement noise of almost any kind †. It consists, according to Sauvages, who seems to judge rightly concerning it, in a torpitude or paresis of some parts of the external organ which, in consequence of this additional stimulus, convey the proper sounds addressed to them beyond the mem-

Cause and seat of the disease.

* Traité de Maladies de l'Oreille et de l'Audition. 2 Tomes, Paris, 1821.
† Feilis in Richter Chir. Bibl. Band. IX. p. 585.

GEN. II. SPEC. III. Paracusis perversa. Perverse hearing.

brane of the tympanum, in the same manner as the drowsy or those who are sluggish in waking, do not open their eyes, or admit the light to the retina unless a strong glare first stimulates the exterior tunics. It seems, however, sometimes to depend upon an obstruction of the Eustachian tubes.

Some sounds better stimulants than others.

Under the influence of this species it occasionally happens that particular sounds or noises prove a better stimulus than others, though equally loud or even louder; as the music of a pipe, of a drum, or of several bells ringing at the same time.

Illustrated.

Holder relates the case of a man who never heard but when he was beating a drum*; and Sauvages a similar case of a woman who, on this account, always kept a drum in the house, which was constantly played upon while she was conversing with her husband. The latter gives another case of a person who was always deaf except when travelling in a carriage, during which time, from the rattling of the wheels, he was perfectly capable of hearing and engaging in conversation. And Stahl gives an instance of like benefit derived from the shrill tones of a pipe †.

Mode of treatment.

In ordinary cases of practice if we can once hit upon a stimulus that succeeds in giving temporary tone to a debilitated organ, we can often avail ourselves of it to produce a permanent benefit, and sometimes a complete restoration, by raising or lowering its power, continuing its power for a longer or shorter term of time, or modifying it in some other way, so as to adapt it to the particular exigency. And it is hence probable that if any of these sonorous stimuli were to be employed medicinally, and with a due respect to length of time, and acuteness of tone, they might, in some instances, be made the medium of obtaining a perfect success.

Stimulus of sound adapted to the exigency

may prove a perfect cure. Illustrated.

Dr. Birch, indeed, gives an instance of such success in a person who only heard during the ringing of bells; and who, by a permanent use of this stimulus, recovered his hearing altogether ‡. Voltaism may here also be employed in many cases with

* Phil. Trans. 1668. No. 26. † Colleg. Casual. N. 76. ‡ Hist. Vol. IV.

a considerable promise of advantage; and especially in connexion with the ordinary routine of general and local tonics and stimulants, as cold, and cold bathing, pungent masticatories, and injections, bark, valerian, alone or with ammonia, and a free use of the siliquose and coniferous plants as a part of the common diet.

Gen. II. Spec. III. Paracusis perversa. Perverse hearing. Voltaism. General and local stimulants and tonics.

SPECIES IV.

PARACUSIS DUPLICATA.

Double-Hearing.

THE ACTION OF THE ONE EAR INACCORDANT WITH THAT OF THE OTHER; SOUNDS HEARD DOUBLY, AND IN DIFFERENT TONES OR KEYS.

Gen. II. Spec. IV. Physiology.

This pravity of hearing depends upon an inaccordance of the auditory nerve on the one side with that on the other: so that the same sound produces, on each side, a very different effect, and is consequently heard, not homotonously, or in like tones, but heterotonously, or in separate and unlike. And hence this species of morbid hearing, as I have already observed, has a considerable parallelism with that of strabismus or squinting, in which the optic axis of the one eye is not accordant with that of the other, whence the same object is seen double, and often in a different position. Sauvages has given two or three very curious examples of this affection. A musician while blowing his flute heard two distinct sounds at every note. The sounds were in different keys, and consequently not in harmony; and as they were heard simultaneously, the one could not be an echo of the other. On another occasion he was consulted by a person who for several months had been troubled with a hearing of two

Analagous to strabismus or squinting.

Singular examples.

GEN. II. SPEC. IV. Paracusis duplicata. Double hearing.

distinct voices whenever he was spoken to; the one at least an octave higher than the other, but not in unison with it; and hence producing a harsh and insupportable discordancy.

Medical treatment.

This affection is mostly temporary, and, as proceeding altogether from a morbid condition of the auditory nerve, has been cured by blisters and other local stimulants. From not being attended to, however, in due time, it has sometimes assumed a chronic character, when it is removed with great difficulty: and in a few instances it has been connected with a constitutional irritability of the nervous system; in which case a plan of general tonics must co-operate with local applications.

SPECIES V.

PARACUSIS ILLUSORIA.

Imaginary Sounds.

INTERNAL SENSE OF SOUNDS WITHOUT EXTERNAL CAUSES.

GEN. II. SPEC. V. Analogous to paropsis illusoria; mostly a nervous affection; and the cause may be local or general.

THIS is in most instances strictly a nervous affection, and bears a striking analogy to paropsis *illusoria*, or that illusory or false sight in which unreal objects of various forms, colours, and other sensible qualities appear before the eyes. The morbid state is often confined to the auditory nerves, or some of the branches alone; yet it is not unfrequently the result of a peculiar irritability that extends through the whole of the nervous system. And occasionally it proceeds from an obstruction of one or both the Eustachian tubes. M. Itard ascribes it to two other causes, both of which are highly questionable: a peculiar state of the blood-vessels, local or general, and an impeded

Sometimes produced by obstruction of the Eustachian tubes.

motion of the air in the tympanal cavity*. The sounds hereby produced differ greatly in different persons, and sometimes in the very same person at different periods; but it is sufficient to contemplate them under the three following varieties, all which the French express by the term *bourdonnements:*

Gen. II. Spec. V. Paropsis illusoria. Imaginary sounds.

α Syrigmus. Ringing, or tinkling.	A sharp, shrill, successive sound.
β Susurrus. Whizzing.	An acute, continuous, hissing sound.
γ Bombus. Beating.	A dull, heavy, intermitting sound.

Heister recommends, in cases arising from a debility of the local nerves, to fumigate the ears with the vapour of a hot vinous infusion of rosemary and lavender; and, where a spasmodic affection of the inner membrane may be supposed to follow upon such debility, he advises a simultaneous use of diaphoretics internally. If it proceed from an obstruction of the Eustachian tubes in consequence of spasm or inflammation, the fumes of tobacco drawn into the mouth, and forcibly pressed against these tubes by closing the lips and nostrils, and then urgently sniffing the vapours upward to the palate, have often proved serviceable by taking off the irritability on which the spasmodic or inflammatory action is dependent. Stimulating the external ear by blisters, or aromatic injections has sometimes availed though not often. Chronic cases are extremely difficult of cure; though I had lately an elderly lady for a patient, who, after having at different times suffered from each of these modifications of illusory sounds for several years, and tried every remedy that could be suggested in vain, at length lost the distressing sensation by degrees, and without the assistance of any medicine.

Medical treatment.

Chronic cases very difficult of cure:

but have disappeared spontaneously.

* Traité des Maladies de l' Oreille, et de l' Audition. 2 Tomes, 8vo. Paris 1821.

SPECIES VI.

PARACUSIS SURDITAS.

Deafness.

TOTAL INABILITY OF HEARING OR DISTINGUISHING SOUNDS.

GEN. II. SPEC. VI. How differs from the preceding species.

IN the preceding species the sense of hearing is in various ways depraved or impaired; in the present it is altogether abolished; and may proceed from causes which offer three distinct varieties of affection:

α Organica. Organic deafness.	From organic defect or impediment.
β Atonica. Atonic deafness.	From local debility or relaxation.
γ Paretica. Paretic deafness.	From nervous insensibility.

α P. Surditas organica. Organic deafness.

The ORGANIC DEFECT or impediment may exist in the outer or inner entrance or in the cavity of the ear. The outer entrance has in a few instances been imperforate *; but far more generally illined and blocked up with indurated wax, excrescences, concretions, or some other substance. The inner entrance or Eustachian tube has been sometimes also found imperforate on both sides, but more frequently obliterated by ulceration †, or closed by the mucous secretion of a catarrh, or the pressure of the tonsils in whatever way morbidly enlarged. If the defect or impediment exist in the cavity of the ear, its precise nature can seldom be known during the life of the patient, and if known would rarely admit of a remedy. It often consists of a malformation of the helix; and, as we have already seen under PAROTITIS, in a loss of the articulation or substance of one or more of the tympanal bones.

Causes. Sometimes in the outer entrance. Sometimes in the inner or Eustachian tube.

* Cels. De Medicin. Lib. VII. c. 8. Büchner, Miscell. Phys.-Med. p. 318. 1727.

† Haller. Elem. Phys. Tom. v. p. 286.

Gen. II. Spec. VI. β P. Surditas atonica.

Atonic deafness. Causes.

Sometimes in the cavity of the ear.

Atonic deafness, or that dependent on local debility or relaxation, may be superinduced by a chronic cold, abruptly plunging the head into cold water in a heated state, a long exposure to loud and deafening noises, or the sudden and unexpected burst of some vehement sound upon the ears*, as that of a cannon or a thunder-clap †, where the constitution is in a state of great nervous irritability: in which state moreover it has in a few instances been produced by a violent fright‡. It has also proceeded from an atony of the excretories of the outer ear, in consequence of which there has been neither wax nor moisture of any kind. And it has followed as a sequel upon various fevers and inflammations, especially cephalitis and otitis, rheumatic hemicrania, and other nervous head-aches, repelled gout, and repelled cutaneous eruptions.

γ P. Surditas paretica.

Paretic deafness.

Causes those of the preceding variety.

Paretic deafness may be regarded in many cases as nothing more than an extreme of atonic deafness; and almost all the causes producing the one, when operating with greater violence or upon a feebler frame, may also produce the other. It has not only been induced suddenly by loud sounds, and violent frights, but by a vehement fit of sneezing, and, from sympathy, by the use of powerful sternutatories§; the olfactory nerve hereby becoming insentient through all its branches.

Sometimes hereditary.

Deafness has often been transmitted hereditarily; of which numerous and unequivocal instances are to be found in Hoffman ||, Morgagni ¶, and other writers of established reputation.

Often immedicable.

The most usual causes of total deafness are beyond the power of the medical art to relieve; and hence the disease runs very generally through the whole period of life. Where the cause is an imperforation of either of the passages, an opening has been often effected with success.

* Schulze, Diss. de Auditûs Difficultate. Sect. 23.
† Borelli, Observ. Cent. IV. Par. 1656.
‡ Eph. Nat. Cur. Cent. IX. Obs. 6.
§ Eph. Nat. Cur. Dec. II. Ann. IX. Obs. 26.
|| Consult. et Respons. Cent. I. cas. 40.
¶ De Sed. et Caus. Morb. Epist. XLVIII. Art. 48.

Gen. II. Spec. VI. γ P. Surditas paretica.

Many other impediments, as of indurated wax, or infarction from inflammation, are in general removeable still more easily; and some obstructions have been suddenly carried off by a fall or other violent concussion of the head. The great difficulty, however, is in getting at such impediments when they are formed in the tympanal cavity.

Paretic deafness.

Treatment when capable of palliation.

The perforation of the mastoid process, recommended by Riolanus, has been practised occasionally with success, and especially by the Swedish anatomists Jasser and Hagstroem. But the difficulties are so considerable that the plan has usually been superseded by a puncture of the membrane, or by injecting the Eustachian tube, as first proposed by an unprofessional artist, Guyot of Versailles, and since followed up successively by Cleland, Petit, Douglas, and Wathen. Of late, however, even this has been dropt; though now once more revived in France by M. Itard*, and in great Britain by Mr. Buchanan†.

Perforation of the mastoid process.

Puncture of the membrane.

Injection of the Eustachian tube.

Stimulants and tonics.

In deafness from atonic relaxation almost all the stimulant and tonic methods pointed out under the preceding species have been tried in turn, occasionally with palliative success, sometimes altogether in vain. The fumes of tobacco sniffed up the Eustachian tubes from the mouth, in the manner described under the last species were recommended by Morgagni‡, and many other writers of earlier times, and have occasionally been found beneficial in our own day; the spasm or other obstruction of the fine tubes ceasing of a sudden, and with the sensation of a smart snap that almost startles the patient. And as sight has sometimes been restored in amaurosis by a violent fever, or a flash of lightning, so has deafness from atony, approaching to paralysis, been recovered by a like fever or a thunder clap§; ordinary causes being thus transferred into extraordinary modes of cure.

Fumes of tobacco sniffed up the Eustachian tube.

Obstruction in these tubes has sometimes ceased suddenly, or by phenomena which often become causes.

Mode of treatment.

Among the stimulants most useful, where the deafness

* Ut suprà.

† Engraved Representation of the Anatomy of the Human Ear, &c. Hull, 1823.

‡ Epist. Anat. VII. Art. 14. Eph. Nat. Cur. Dec. I. Ann. VI. Obs. 110.

§ Bresl. Samml. 1718. p. 1541.

Gen. II. Spec. VI. Paracusis Surditas. Deafness. Treatment.

is dependent upon debility of the membrane of the tympanum, or the nerve of hearing, have been the aura of voltaic electricity, applied two or three times a-day for half an hour or longer each time, and persevered in for many weeks; a series of blisters continued for a long period, and a diluted solution of nitrate of silver. Yet a chronic ulcer forming in the ear, and discharging plentifully, has often proved more effectual than any of these.

Voltaic electricity. Blisters. Solution of nitrate of silver. Chronic ulcer.

Mr. Gordon, in the Edinburgh Medical Commentaries, relates a case of total deafness produced suddenly on a soldier in good health, by plunging overhead into the sea: which, after a long routine of medicines had been tried in vain for three months, yielded to the use of mercury as soon as the mouth began to be affected. A gentle salivation supervened, his hearing was gradually restored, and in six weeks from its commencement he returned to his duty perfectly cured *. The excitement of the salivary glands seems, in this case, to have extended by sympathy to the Eustachian tubes, or whatever other parts of the organ of hearing were diseased.

Case of cure by salivation. Explained.

When the Eustachian tubes are imperforate or irrecoverably closed, which may commonly be determined by an absence of that sense of swelling in the ears which otherwise takes place on blowing the nose violently, Riolanus, and afterwards Chisselden, proposed a substitute for the canal by making a small perforation through the membrane of the tympanum; and Sir Astley Cooper has boldly put their recommendation to the test. The artificial opening does not destroy the elasticity of the membrane, and it has hence been occasionally attended with success; and perhaps would be always, if it were to be limited, as M. Itard † has shown it ought to be, to a permanent obstruction of the Eustachian tube, unaccompanied with inflammation, or any other cause of deafness. And it is from a wanton application of this remedy to other cases, that it has so often been tried in vain since Sir Astley Cooper's successful sanction.

Puncture of the membrana tympani a substitute in imperforation of the Eustachian tube. Its proper limitation, as opposed to a useless and wanton employment.

* Edin. Med. Com. Vol. III. p. 80.

† Traité de Maladies de l'Oreilles et de l'Audition, &c. 2 Tomes. Paris, 1821.

GENUS III.

PAROSMIS.

Morbid Smell.

SENSE OF SMELL VITIATED OR LOST.

Gen. III. Synonyms and generic derivation.

THIS is the parosmia and anosmia of many writers; from παρὰ, "malè", and ὄζω, "olfacio", analogous with PARACUSIS and PAROPSIS: anosmia, however, will not include one of its species, and the present termination is preferred on account of its analogy with that of the parallel terms.

Under this genus may be arranged the three following species:

1. PAROSMIS ACRIS. ACRID SMELL.
2. ——— OBTUSA. OBTUSE SMELL.
3. ——— EXPERS. WANT OF SMELL.

SPECIES I.

PAROSMIS ACRIS.

Acrid Smell.

SMELL PAINFULLY ACUTE OR SENSIBLE TO ODOURS NOT GENERALLY PERCEIVED.

Gen. III. Spec. I. Physiology.

GENERALLY speaking, the sense of smell in all animals is in proportion to the extent of the Schneiderian or olfactory membrane with which the nostrils are lined, and over which the branches of the olfactory nerves divaricate and ramify. And hence this membrane is much more ex-

GEN. III. SPEC. I. Parosmis acris. Acrid smell.

tensive in quadrupeds and birds, which chiefly trust to the sense of smell in selecting their food, than in man; for it ascends considerably higher, and is, for the most part, possessed of numerous folds or duplicatures. It is hereby the hound distinguishes the peculiar scent thrown forth from the body of the hare, and the domestic dog recognises and identifies his master from all other individuals.

Olfactory nerves nearly naked.

Yet the nerves of smell are not only spread in great abundance over the olfactory membrane of all animals possessing such an organ, but they are distributed so near the surface as to be almost naked; and hence in every class they are easily and hourly excited into action, being covered with little more than a layer of bland, insipid mucus, thin at its first separation, but gradually hardening by the access of air into viscid crusts, and which is expressly secreted for the purpose of defending them. From this nearly naked state it is that they are stimulated by aromatics, however finely and impalpably divided: whence the violent sneezings that take place in many persons in an atmosphere in which only a few particles of sternutatories or other acrid olfacients are floating: and hence also the rapidity with which a sympathetic action is excited in the neighbouring parts or in the system at large, and the refreshment which is felt on scenting the pungent vapour of carbonate of ammonia, or vinegar, or the grateful perfume of violets or lavender, in nervous head-aches or fainting-fits. The fetid odours are well known to affect the nostrils quite as poignantly as the pleasant; and to produce quite as extensive a sympathy: and hence the nausea, and even intestinal looseness which often follows on inhaling putrid and other offensive effluvia.

And hence easily stimulated by the finest aromatics impalpably pulverized; and rapidly acting by sympathy and affording refreshment. Hence also the ready and extensive effect of fetid odours.

Under peculiar circumstances the sense becomes exquisitely keen.

Said to be keener among sa-

Under peculiar circumstances, however, the ordinary apparatus for smell possesses an activity, and sometimes even an intolerable keenness, which by no means belongs to it in its natural state. M. Virey, who has written a very learned treatise upon the subject of odours, asserts that the olfactory sense exists among savages in a far higher degree of activity than among civilized nations,

GEN. III. SPEC. I. Parosmis acris. Acrid smell.

whose faculty of smell is blunted by an habitual exposure to strong odours, or an intricate combination of odours, and by the use of high-flavoured foods. And he might have added that this sense, like every other, is capable of cultivation, and of acquiring delicacy of discrimination by use; that savages, many of whom make an approach to the life of quadrupeds, employ it, and trust to in a similar manner; and that this is, perhaps, the chief cause of the difference he has pointed out. It is in like manner relied upon by persons who are deprived of one or two of the other external senses, as those of sight or hearing, or both: not merely in consequence of more frequent employment, but from the operation of the law we have already pointed out, that where one of the external senses is destroyed or constitutionally wanting, the rest, in most cases, are endowed with an extraordinary degree of energy, as though the share of sensorial power, naturally belonging to the defective organ, were distributed among the rest and modified to their respective uses. One of the most interesting examples that I am acquainted with of this transfer of sensorial power is to be found in the history, first given to the public by Mr. Dugald Stuart, of James Mitchell, a boy born both blind and deaf; and who, having no other senses by which to discover and keep up a connexion with an external world than those of smell, touch, and taste, chiefly depended for information on the first, employing it on all occasions, like a domestic dog, in distinguishing persons and things. By this sense he identified his friends and relatives; and conceived a sudden attachment or dislike to strangers according to the nature of the effluvium that escaped from their skin. "He appeared," says Mr. Wardrop, who has also published an account of him, "to know his relations and intimate friends by smelling them very slightly, and he at once detected strangers. It was difficult, however, to ascertain at what distance he could distinguish people by this sense; but, from what I could observe, he appeared to be able to do so at a considerable distance from the object. This was particularly striking when a person en-

vages than civilized nations, and why.

Sense of smell like all others, capable of cultivation: more fully relied upon by those who are deprived of sight or hearing.

Striking illustration of this remark.

tered the room, as he seemed to be aware of such entrance before he could derive information from any other sense than that of smell. When a stranger approached him he eagerly began to touch some part of the body, commonly taking hold of his arm, which he held near his nose; and after two or three strong inspirations through the nostrils, he appeared to form a decided opinion concerning him. If it were favourable, he shewed a disposition to become more intimate, examined more minutely his dress, and expressed, by his countenance, more or less satisfaction. But if it happened to be unfavourable, he suddenly went off to a distance with expressions of carelessness or disgust." *

GEN. III. SPEC. I. Parosmis acris. Acrid smell.

The *Journal des Sçavans* for 1667, gives a curious history of a monk who pretended to be able to ascertain, by the difference of odour alone, the sex and age of a person, whether he were married or single, and the manner of life to which he was accustomed. This, as far as the fact extended, may possibly have been the result of observations grafted upon a stronger natural sense than belongs to mankind in general; and is scarcely to be ranked in the list of diseased actions. But among persons of a highly nervous or irritable idiosyncrasy, I have met with numerous instances of an acuteness of smell almost intolerable and distracting to those who laboured under it; which has fairly constituted an idiopathic affection; and sometimes nearly realized the description of the poet, in making its possessors ready at every moment to

Sex, age, and other qualities said to be ascertainable by this sense when exquisitely keen.

Hence often distressingly acute, and particularly to persons of a nervous habit: who have fainted beneath the smell of a rose, as described by Pope.

Die of a rose in aromatic pain.

Mr. Pope seems to have written this line as a play of fancy at the time, but the writings of various collectors of medical curiosities abundantly show that he has here described nothing more than an occasional and sober fact. Thus M. Orfila gives us an account of a celebrated painter of Paris of the name of Vincent, who cannot remain in any room where there are roses without being in

This description not fanciful.

Examples of its correctness.

* History of James Mitchell, a boy born blind and deaf, &c. By James Wardrop, F.R.S. Ed. 4to. 1813.

GEN. III. SPEC. I. Parosmis acris. Acrid smell

a short time attacked with a violent cephalæa succeeded by fainting *. And M. Marrigues informs us that he once knew a surgeon who could not smell at a rose without a sense of suffocation, which subsided as soon as the rose was removed from him; as he also knew a lady who lost her voice whenever an odoriferous nosegay was applied to her nostrils †.

We have observed that a keen stimulation of the olfactory nerves is often productive of a very powerful sympathetic action in other organs. There are few persons who, on inhaling the fine particles of black hellebore and colocynth, while in the act of being pounded, would not feel their effect on the intestines by a copious diarrhœa; but where the acuteness of smell exists which constitutes the present disease, whether limited to particular odours, or extending to all odours equally, the sympathetic action is sometimes of a very singular description. M. Valtain gives the history of an officer who was thrown into convulsions and lost his senses by having in his room a basket of pinks, of which, nevertheless, he was very fond. The flowers were removed, and the windows opened, and in the course of half an hour the convulsions ceased, and the patient recovered his speech. Yet for twelve years afterward he was never able to inhale the smell of pinks without fainting ‡. And M. Orfila relates the case of a lady of forty-six years of age, of a hale constitution, who could never be present where a decoction of linseed was preparing without being troubled in the course of a few minutes afterwards with a general swelling of the face, followed by fainting and a loss of the intellectual faculties; which symptoms continued for four and twenty hours §.

Singular effect of the odour of pinks:

like effect of the odour of linseed.

Predisponent cause of the present species. Occasional causes.

The predisponent cause of the species before us is a nervous or irritable habit. The occasional causes are local irritation from a slight cold, in which the contact of the air alone, as inhaled, often produces sneezing; or ex-

* Sur les Poisons, Tom. II. Cl. v. § 972.

† Journ. de Physique, year 1780.

‡ Hygiene Chirurgicale, p. 26. § Sur les Poisons, loc. citat.

coriation of the mucous membrane of the nostrils from the use of sternutatories in those not accustomed to them. It is often the result of idiosyncrasy; and perhaps at times, as in paracusis *acris*, of a superfluous distribution of olfactory nerves. As a symptom it is often found in ophthalmia and rheumatic hemicrania.

GEN. III. SPEC. I. Parosmis acris. Acrid smell. Sometimes a result of idiosyncrasy. Often found as a symptom in various diseases.

Where the disease is connected with the habit, the nervous excitement should be diminished by refrigerants and tonics, as the shower-bath, bark, acids, neutral, and several of the metallic salts. And where it is chiefly local, we may often produce a transfer of action by blisters in the vicinity of the organ: or relax the Schneiderian membrane, and moisten its surface by the vapour of warm water. The sniffing up cold water will also prove serviceable in many instances, by inducing torpitude at first and additional tone afterwards. Dr. Darwin advises errhines for the first of these purposes, that of exhausting the excitability and blunting the sense.

Medical treatment.

SPECIES II.

PAROSMIS OBTUSA.

Obtuse Smell.

SMELL DULL, AND IMPERFECTLY DISCRIMINATIVE.

GEN. III. SPEC. II. Sometimes a natural defect. Sometimes produced by a too free use of sternutatories. Illustrated.

THIS is often a natural defect, but more frequently a consequence of an habitual use of sternutatories, which exhaust, weaken, and torpify the nerves of smell, as long exposure to a strong light weakens and impairs the vision, and sometimes destroys it altogether. To those unaccustomed to sternutatories, the mildest snuffs will produce such an excitement as is marked by a long succession of sneezing, which is nothing more than an effort of the remedial power of nature to throw off the offending material;

GENUS IV.

PARAGEUSIS.

Morbid Taste.

SENSE OF TASTE VITIATED OR LOST.

GEN. IV. Origin of the generic term. Synonyms.

PARAGEUSIS is derived from παρὰ, "male", and γεύω, "gustum præbeo", whence παραγεύω, and consequently παραγεύσις. The author has preferred, with Vogel, the present termination to parageusia, as analogous to the names of the preceding genera of the order before us.

Association between the senses of taste and smell.

Illustrated.

In the senses of taste and smell there is a considerable association, partly perhaps resulting from the proximity of their organs and partly from an affinity in the modification of the sentient fluids with which they are supplied. The young lady I have just noticed who was destitute, or nearly so, of the sense of smell, was equally destitute of that of taste, and could not distinguish by this criterion between beef, veal, and pork; and consequently in respect to all these had no preference.

Tongue not the only though the chief organ of taste: as taste has remained when the tongue has been lost; or never existed.

Some animals appear to have a power of taste that have no tongue.

Other animals possessing a

The chief organ of taste is the tongue, but this is not the only organ, nor is it absolutely necessary for an existence of the sense. The Philosophical Transactions give us examples of persons who possessed a perfect taste after the tongue had been wholly destroyed; and Professor Blumenbach, in his Comparative Anatomy, affords us a similar example in an adult whom he visited, and who was born without a tongue. Consonant with which many insects appear to have a faculty of taste, though they have no organ of a tongue: and among these the gustatory function is supposed by Professor Knoch to be performed by the posterior pair of palpi or feelers. While, on the other hand, there are many animals possessing a tongue who do not use it as an organ of taste. All birds possess

a tongue, for even the pelican, which has been said to be tongueless, has a rudiment of this member: yet there are but few birds, comparatively, that taste or are able to taste with this organ. Parrots, predaceous and swimming birds are an exception to this remark; for they possess a soft thick tongue, covered with papillæ, and moistened with a salivary fluid, and select that food which is the most agreeable. Yet in by far the greater proportion of birds we do not find the tongue appropriated to this purpose. In many of them, indeed, it is stiff, horny, and destitute of nerves. The tongue of the toucan, though sometimes several inches in length, is scarcely two lines broad at its root: it has throughout the appearance of whale-bone and its margins are fibrous. The tongues of the woodpecker and cock of the woods are equally hard and horny: in themselves they are short, and in a quiescent state, lie backward in the mouth, and are covered with a sort of sheath issuing from the os hyoides or the esophagus: but they possess a mechanism which renders them extremely extensile, and capable of being thrust forward to a considerable distance. That of the woodpecker is sharp-pointed with barbed sides, and is darted with great rapidity out of the mouth to an extent of some inches; by which means it follows up such insects as the animal is in pursuit of, through all their crannies in the bark of trees; sticks them through with its apex, and in this state drags them out for food. The chameleon has a tongue of a somewhat similar kind, which, in like manner, answers the purpose not of taste, but of preying for food. It is contained in a sheath at the lower part of the mouth, and has its extremity covered with a glutinous secretion. It admits of being projected to the length of six inches; and is used in this manner by the animal in catching its spoil, and especially in catching flies. It is darted from the mouth with wonderful celerity and precision; and the viscous secretion on its extremity entangles minute animalculæ, which constitute another portion of its food.

GEN. IV. Parageusis. Morbid taste.

tongue do not employ it as an organ of taste.

Few birds thus employ it.

Toucan.

Woodpecker and cock of the woods.

Chameleon.

GEN. IV. Parageusis. Morbid taste.

The tongue when an organ of taste studded with papillæ: covered with a fine epithelium.

The tongue, when it forms an organ of taste, as in man, is studded, and especially on its upper surface and lateral edges, with innumerable nervous papillæ issuing from a peculiar membrane that lies beneath, and has a near resemblance to the skin in other parts, but is softer and more spongy. Its external tunic or cuticle is an exquisitely fine epithelium, which is moistened, not by an oily fluid, like that of the surface of the body, but a peculiar mucus which proceeds from the foramen cæcum of Meibomius, and the rest of the glandular expansion of Morgagni.

Hence more sensible of touch than the papillæ of the skin. Its sentient fluid differently modified:

and rendering it capable of discerning qualities which the papillæ of the skin cannot.

We have here, therefore, a more exquisite sense of touch than on the general skin, whose papillæ are not only smaller but dry.

There can be no question, also, that the sentient fluid with which they are supplied is differently modified from that of the skin; and hence the provinces of the two senses, though they occasionally approach each other, are still kept distinct; and the tongue becomes a discerner of certain qualities, which the skin cannot discriminate: as sour, sweet, rough, bitter, salt, and aromatic.

Exact cause of diversity of flavours unknown.

Opinion of the Epicureans still common in the present day.

Explanation unfounded.

Thus much we know; but we do not know the cause of that different effect, or, in other words, of that variety of tastes which different substances produce upon the papillæ of the tongue, and which constitute their respective flavours. It was supposed by the Epicureans, and the doctrine has descended to the present day, that all this depends upon the geometrical figure of the sapid corpuscles; and particularly so with respect to saline bodies, which are cubic in sea-salt, prismatic in nitre, and equally diversified in vitriol, sugar, and other crystals. It is sufficient, however, to annul this explanation to observe, that many crystals of very different forms are alike insipid; while others of the same, or nearly the same, shape, possess very different flavours; as also that the flavour in any of them continues the same even where we are able to change the figure; as, for example, by rendering common nitre cubical. The cause of flavours, therefore, ap-

pears to reside in the elementary principles of substances that lie beyond the reach of our senses.

GEN. IV. Parageusis. Morbid taste.

But the variable condition of the peculiar covering of the papillæ of the tongue, together with the condition of the adjoining organs, which concur in the purpose of the tongue, as also the changeable nature of the saliva, and of the substances lodged in the stomach, all concur in influencing the taste, and giving a character to the flavour. And hence the same flavours do not affect persons of all ages nor of all temperaments; nor even the same person at all times. In general whatever contains less salt than the saliva does, seems insipid. The spirituous parts of plants are received, in all probability, either into the papillæ themselves, or into the absorbing villi of the tongue; and hence the rapid refreshment and renovation of strength, not easy to be accounted for otherwise, which these stimulating materials produce even when they are not taken into the stomach.

Flavour influenced by the state of the tongue and adjoining organs.

Whence the same flavours affect different persons differently: and the same person at different times.

Whence the quality of being insipid.

How the spirituous parts of plants act.

It is from the diversity of flavours by which nature has distinguished different substances, that animals are taught instinctively what is proper for their food: for, speaking generally, no aliment is unhealthy that is of an agreeable taste; nor is any thing ill tasted that is fit for the food of man. We here take no notice of excess by which the most healthy foods may be rendered prejudicial, nor of mineral preparations which are not furnished by nature but prepared by art. And hence the wisdom of Providence incites man to select the nutriment that is best fitted for his subsistence equally by the pain of hunger, and the pleasure of tasting. Man, however, is often guided by instruction and example as well as by his own instinct: but animals which are destitute of such collateral aids, and have to depend upon their instinct alone, distinguish flavours, as we have already observed they do smells, with a far nicer accuracy than mankind; and, admonished by this correct and curious test, abstain more cautiously than man himself from eating what would be injurious. And hence herbivorous animals, whose vegetable food grows often intermixed with a great di-

Diversity of flavours teaches animals instinctively their proper food.

No aliment unhealthy in itself that is of an agreeable taste.

Exceptions.

Quadrupeds have a more discriminating taste as well as smell than man: and hence readily distinguish nutritive from poisonous plants when intermixed.

GEN. IV. Parageusis. Morbid taste.

versity of noxious plants, are furnished with much longer papillæ, and a more delicate structure of the tongue than mankind, as they are endowed also with a more accurate sense of smell; both which, indeed, they jointly rely upon for the same purpose.

The sense of taste, therefore, which possesses so close an analogy to that of smell, is subject to a similar train of specific diseases, and consequently the genus parageusis must contain the three following species:

1. PARAGEUSIS ACRIDA. ACRID TASTE.
2. ——— OBTUSA. OBTUSE TASTE.
3. ——— EXPERS. WANT OF TASTE.

SPECIES I.

PARAGEUSIS ACRIDA.

Acrid Taste.

TASTE PAINFULLY ACUTE OR SENSIBLE TO SAVOURS NOT GENERALLY PERCEIVED.

GEN. IV. SPEC. I.

Sense of taste improveable by use:

and exhausted by labour.

THE sense of taste, like that of sight, smell, or hearing, is capable of acquiring a higher degree of accuracy by use: and hence those who are in the habit of tasting wines by this organ, perceive a variety of flavours, or modifications of flavour, which another person not versed in such trials, is insensible of. We also perceive that the nerves of taste, like those of every other sense, become exhausted, and consequently torpid, by much labour and fatigue. And hence the nicest discriminater, after having tried a variety of wines, spirits, or other pungent savours in quick succession, is far less capable of judging concerning them, and has at last little more than a confused perception of gustatory excitement.

Gen. IV. Spec. I. Parageusia acrida. Acrid taste.

Morbid acuteness of taste, however, varies essentially from accuracy of taste: for under particular states of irritation, pungent savours, of whatever kind, give equal pain to the tongue, which at the same time is altogether incapable of distinguishing between them.

Morbid acuteness of taste distinct from accuracy of taste.

This painful acuteness may proceed from two causes: a morbid or excessive secretion of sentient fluid, or a deficient secretion of the peculiar mucus that lubricates the lingual papillæ; in consequence of which the latter are exposed in a naked state to whatever stimuli are introduced into the mouth. The former is sometimes found, though for the most part only temporarily, in highly nervous and irritable constitutions, and especially during a state of pregnancy; the latter in an acrimonious condition of the stomach accompanied with great thirst and a parched tongue. Both these causes, however, very frequently co-exist; as in ulcerated sore throats, or other excoriations of the mouth, in which the papillæ are in a state of the keenest excitement, while the tongue is sore either from a defective secretion of mucus, or from its being carried off by a morbid and augmented action of the absorbents as fast as it is formed.

Causes, a morbid or excessive secretion of sensorial fluid; and a deficient secretion of lubricating mucus.

Both causes sometimes co-exist.

In this state of diseased action, moreover, it not unfrequently happens that the mucus itself is secreted in a morbid and acrimonious condition; and the palate, instead of being soft and smooth, becomes harsh and rugous or furrowed, exquisitely irritable, and intolerant of the slightest touch or the mildest savours. I have sometimes met with this distressing affection, apparently as an idiopathic ailment, or at least unconnected with any manifest disease of the stomach or any other organ; and seemingly induced by a rheumatic pain from carious teeth. It is, however, far more frequently a symptom of acrimonious dyspepsy, porphyra, and chronic syphilis.

Mucus sometimes acrimonious when secreted.

In treating this affection we should, in the first instance, direct our attention to the state of the stomach, and clear it of whatever sordes may probably be lodged there. This may sometimes be done by aperients: but when we are sure of an acrimonious defœdation in this

Medical treatment.

Emetics.

Gen. IV. Spec. I. Parageusis acrida. Acrid taste.

organ, it will be the shortest way to commence with an emetic.

Topical applications.

The local symptoms may, in the mean while, be relieved in two ways. First, by changing the nature of the morbid action, or exhausting the accumulated sentient power by acid or astringent gargles, or a free use of the coldest water alone: for which purpose also sage-leaves and acrid bitters have often been employed with advantage. And next, the naked and irritable tongue may be sheathed with mucilages of various kinds; and thus a substitute be obtained for its natural defence. And in many cases both these classes of medicines may be conveniently united.

Attention to the primary disease when symptomatic.

When the affection is a symptom of some other disease, as in the case of syphilis and scurvy, it can only be cured by curing the primary malady. Carious teeth, if such exist, should be extracted; and if the palate be rugous or spongy, scarification should be employed copiously and repeatedly.

SPECIES II.

PARAGEUSIS OBTUSA.

Obtuse Taste.

TASTE DULL, AND IMPERFECTLY DISCRIMINATIVE.

Gen. IV. Spec. II. Sometimes idiopathic: and connected with obtuseness of smell.

This species rarely calls for medical attention. It occurs sometimes idiopathically, and seems to be dependent on a defective supply of nerves, or nervous secretion subservient to the organ of taste. I have seen it under this form in various instances; and, as already observed, have found it connected in a few cases with obtuseness of smell. The patient has not been altogether without taste or smell, but both have been extremely weak and

incapable of discrimination. In the case alluded to at the commencement of this species, the individual could distinguish the smell of a rose from that of garlic, and the flavour of port wine from that of mountain or madeira; but she could not discriminate between the odour of a rose and that of a lilly, nor between the taste of beef, veal, or pork, and consequently gave no preference to either of these dishes.

GEN. IV. SPEC. II. Parageusis obtusa. Obtuse taste.

As a symptom this affection occurs in almost all the diseases that are accompanied with hebetude of smell, as catarrh, hysteria, and several species of cephalæa.

Found frequently as a symptom.

SPECIES III.

PARAGEUSIS EXPERS.

Want of Taste.

TOTAL INABILITY OF TASTING OR DISTINGUISHING SAVOURS.

As an utter want of smell is sometimes a natural or congenital effect, so in a few instances is an utter want of taste, and unquestionably from the same cause, an absolute destitution of nerves or nervous power subservient to the gustatory organ. This default is altogether immedicable: as is also for the most part the same when a result of palsy general or local: though here stimulant gargles or masticatories, as mustard-seeds, horse-radish, pyrethrum, and camphor, have sometimes succeeded in restoring action to the torpid nerves. When, however, it occurs, as it sometimes does from a long use of tobacco, whether by smoking or chewing, or of other acrid narcotics, these stimulants will be of no use.

GEN. IV. SPEC. III. Sometimes natural and congenital: and then immedicable. Sometimes the result of palsy, and may admit of palliation.

In fevers, various exanthems, and inflammations, this species exists temporarily, partly perhaps from a dimin-

A temporary symptom in various complaints.

SPECIES I.

PARAPSIS ACRIS.

Acrid Sense of Touch.

THE SENSE OF TOUCH PAINFULLY ACUTE OR SENSIBLE TO IMPRESSIONS NOT GENERALLY PERCEIVED.

GEN. V. SPEC. I.

THIS species of morbid sensibility shows itself under almost innumerable modifications: but the four following are the chief:

α	Teneritudo.	Soreness.
β	Pruritus.	Itching.
γ	Ardor.	Heat.
δ	Algor.	Coldness.

α P. acris Teneritudo. Acrid sense of soreness or tenderness.

In the first variety or that of SORENESS there is a feeling of painful uneasiness or tenderness, local or general, on being touched with a degree of pressure that is usually unaccompanied with any troublesome sensation. This is often an idiopathic affection; but more generally a symptom or sequel of fevers in their accession or first stage, inflammations, or external or internal violence, as strains, bruises, and spasms.

Pathology. Different circumstances under which the affection occurs. Feeling of corporeal ease and comfort, on what dependent.

It is not always easy to account for this feeling, and perhaps the cause is, in every instance, more complicated than we might at first be induced to suppose. It occurs where there is distention of the vessels, where there is contraction of them, and where there is neither. Wherever it exists, however, it is a concomitant of debility, and may, in many instances, be regarded as the simple pain of debility, the uneasiness of an organ thrown off from its balance of health. The general health of the body depends in a very considerable degree upon the harmonious cooperation of its respective organs; insomuch, indeed, that this harmony of action, as we had occasion to ob-

serve in the Physiological Proem prefixed to the present class, was supposed by a distinguished school of ancient philosophers, and is still supposed by many physiologists of the present day, to constitute the principle of life itself. Regarded as an universal principle the hypothesis is unfounded, though in many respects beautiful and plausible *. Yet notwithstanding that the life of the animal frame does not altogether depend upon an harmonious co-operation of the whole of the organs that enter into its make, much of the comfort of life has such a dependence; and we trace the same principle in the minutest and comparatively most trivial parts of the animal functions as manifestly as in the largest and most complicated organs. Where every portion of a member, however subordinate in itself, as a toe or a finger, works well or healthily, there is a feeling of ease and comfort, but wherever it works ill or with difficulty, there is a sense of disquiet, and, under peculiar circumstances, of tenderness or soreness. A change in the diameter of a vessel whether by dilatation or contraction, provided it be moderate and gradual, is accompanied with no uneasy sensation whatever; but if either be violent or sudden, a feeling or soreness is a certain result, of which we have daily examples in strains and spasms. There may perhaps be no great difficulty in accounting for this: but the more common cause of tenderness is of a different kind, and a cause which often operates when neither of these are present though it is often combined with them.

Gen. V. Spec. I. a P. acris Teneritudo. Acrid sense of soreness or tenderness.

Feeling of disquiet and tenderness produced by various causes.

The chief cause traced and described.

In order that every part of an organ may play upon every other part with a feeling of ease and comfort, it is well known that throughout the entire system, not only every surface, but every, even the minutest, interstice in the tunics of the minutest vessels, is supplied by a soft and lubricous fluid, which is poured forth by secernents of exquisite subtilty, and having executed its purpose and become waste matter, is carried off by equally subtile ab-

Consists in a morbid condition of the excretories of the surfaces and interstices of organs; and a diminished supply of their unctuous fluid

* Ut suprà, p. 14.

Gen. V. Spec. I. α P. acris Teneritudo. Acrid sense of soreness or tenderness.

sorbents, and succeeded by a fresh secretion of the same fluid.

In all cases of violence these are the vessels that first give way together with their correspondent absorbents, whose torpitude co-operates in producing the sense of soreness:

Now in all cases of external or internal violence these are the vessels that first give way and are rendered incapable of fulfilling their function. The secernents that supply this lubricous fluid become weakened, and pour forth a smaller quantity of it than is sufficient for a free and easy play of one part of an organ upon another part, and hence there is a tenderness or soreness from the friction of sides or surfaces against each other, and their coming into naked contact. But as the corresponding absorbents are equally weakened, they cannot carry off the whole of the fluid that is actually secreted, how much soever diminished in quantity: and hence, while they imbibe the subtler and more attenuate particles, they leave the grosser behind; which not only become so many sources of impediment, but, from forming part of a mobile and lubricous effusion, are transformed into so many harsh and stationary goads. And hence another cause of that soreness which accompanies all cases of violence, as well internal as external, and particularly upon external pressure. The effect of such pressure, as forcing upon each other naked and highly sensible surfaces, may be easily conceived; but there can be little doubt that the chief sense of soreness, in the case of external pressure, proceeds, from thus forcing against each other the naked and unlubricated sides of the vasa vasorum, which, in this manner deprived of their usual inunction, are incapable, without uneasiness, of yielding even to the ordinary impetus of a vis à tergo, or the touch of the common fluid they convey.

principally existent in the vasa vasorum.

Sometimes seems to occur without violence.

It appears probable that some such morbid change in the natural powers of these excretories and absorbents takes place occasionally without any strain or violence whatever, and from causes we cannot follow up; for we sometimes meet with a like sense of soreness without any forcible injury. But that these are the vessels which primarily and most readily give way under the operation of violence is clear from their being frequently, even from

slight accidents, altogether deprived of tone and rendered completely torpid; so that while the absorbents carry off no part of whatever fluid is effused, the excretories open without resistance, and from mere relaxation to the impetus behind, and admit fluids of almost every kind, as coagulable lymph, yellow serum, and occasionally even red blood: whence the extensive swelling that sometimes takes place almost immediately upon a strain or bruise, and the diversified hues it exhibits. The diversity of hues, however, appears chiefly as the swelling subsides; for as the subtlest, which are the most limpid, particles are first carried off by themselves, as soon as the absorbents begin to resume a healthy action, the grosser, which are the coloured particles, as the yellow and the red or purple, are left nearly alone, and consequently in a more concentrated state, and require an elaborate subdivision before they can be fitted for removal.

Gen. V. Spec. I. α P. acris Tenerituđo. Acrid sense of soreness or tenderness. Proofs that these vessels first give way under the operation of violence.

From all which we may easily trace the principle that renders warmth, gentle friction, and such stimulants as spirits, balsams, and essential oils, of general advantage, wherever the kind of tenderness we are now describing occurs, and is unconnected with inflammation.

Hence gentle stimulants form the best remedy.

The sense of ITCHING, which may be defined a painful titillation local or general, relieved by rubbing, is commonly a result of some mechanical or morbid irritant applied externally or internally to the part affected; though sometimes, unquestionably, dependent upon a morbid sensibility of the nerves of feeling themselves. If the summit of the nerves or their extreme points be alone touched, the effect is TICKLING or TITILLATION, as in the vellication of the skin by a feather; if it descend a little below the summit it is accompanied with a vibratory feel which we call TINGLING, as when the beard of barley-corns creeps unobserved by us up the arms; and if it reach still deeper, it is combined with a sense of piercing, which we call PRICKING, as when the keen hairs of several species of dolichos or cowage are handled or blown upon the skin by a light breeze.

β P. acris Pruritus. Acrid sense of itching. Generally produced by mechanical or morbid irritants. Sometimes by a morbid sensibility of the nerves of feeling. Mechanical stimulants. Simple tickling. Tingling. Pricking.

In many cases all these modifications of itching are the

GEN. V. SPEC. I. β P. acris Pruritus. Acrid sense of itching.

effect of some acrimonious secretion on the surface of the body, or of an acrimonious change in the common matter of perspiration in consequence of its lodging in the cutaneous follicles longer than it should do. The PAPULOUS EFFLORESCENCES we shall have to treat of under the third order of the sixth class will afford abundant examples of both these causes of itching, as they will also of an intolerable itching, apparently produced by, or closely connected with, a morbid sensibility of the cutaneous nerves themselves. For the present we can do nothing more than refer generally to various species of exormia, as lichen and prurigo; and of ecpyesis, as impetigo and scabies. It is, moreover, highly probable that the disorder called FIDGETS is sometimes chiefly dependent on a morbid sensibility of the summits or extreme ends of the cutaneous nerves.

Morbid irritants.

Found as a symptom in various diseases.

This affection is also found as a very troublesome symptom in pernio and other cutaneous inflammations, as likewise in urticaria and other rashes.

γ P. acris Ardor. Acrid sense of heat.

The sensations of HEAT and COLD may be explained at the same time. An easy and pleasureable warmth depends, in a state of health, upon a moderate temperature of the atmosphere, which cannot be very accurately laid down, because, from habit or constitution, or some other circumstance, different persons enjoy very different temperatures. Now it is the well known property of heat and cold to disturb the temperature, whatever it may be, that affords ease and comfort to the nerves of feeling; and to produce disquiet as they either raise or depress it.

Easy and pleasureable warmth what.

Heat a strong irritant. Mode of action and cause of uneasiness.

And this both of them do in two distinct ways. HEAT is a strong irritant, and even if it made no change in the bulk of a living organ, or the juxta-position of its particles, like all other irritants it would still excite a troublesome feeling, amounting at length to acute pain, if raised to a considerable range beyond the ordinary scale. But it does, in every instance, excite a change in the bulk of living organs and the juxta-position of their particles; for it enlarges the former in every direction, and only does this by separating the particles from each other; in which

Operating in a twofold manner.

forcible and sudden divellication we have a second source of the troublesome and acute sensation which so constantly accompanies a temperature when carried very considerably above the point of health.

Gen. V. Spec. I. γ P. acris Ardor. Acrid sense of heat.

Heat, as an idiopathic affection, occurs chiefly in plethoric and irritable habits. In the former it is relieved by blood-letting, and evacuants of neutral salts: in the latter by mild diaphoretics, and afterwards cold bathing and other tonics.

When an idiopathic affection, how relieved.

As a symptom it is found, also, in the second stage of fever, in inflammation, and entonic empathema.

Found also as a symptom in various diseases.

Cold is also a strong irritant, though it acts by the opposite means of heat. When the atmospheric temperature is too high it is a pleasant and reviving agent, inasmuch as it both reduces the heated medium, and restores the particles of the affected organ from a state of disquieting tenseness to their usual scale of approximation. If the cold be pushed farther, it may go a little beyond this and still be pleasant and healthful; for the organ or the general system may be in a state of morbid relaxation, and, consequently, in their actual scale of approach, the living particles may be too far remote for the purposes of high elasticity and vigour. And it is in such a condition as this that cold chiefly shows its stimulant power, and is so generally resorted to as a tonic. But if the agency of cold be carried farther than this, it produces uneasiness to the nerves of feeling by a process precisely the reverse of that we have just shown to be pursued by heat, and consequently in a two-fold manner. First by sinking the warmth of the organ, or of the system, below its scale of ease and comfort, and next by forcing the living particles into too close and crowded a state, and not allowing them sufficient room for play.

β P. acris Algor. Acrid sense of cold.

Cold a strong irritant.

Mode of action and cause of uneasiness.

Operates in a two-fold manner, reversely to the process of heat.

Cold, as an idiopathic affection, is chiefly local, and most common to the head and feet. It is temporarily relieved by warmth and stimulants, and particularly by the friction of a warm hand; and, where it can be used, the exercise of walking. It is permanently relieved by the warmer tonics, as sea-bathing and aromatic bitters.

Where chiefly seated, when an idiopathic affection; and how relieved.

GEN. V. SPEC. II. α P. expers Simplex. Numbness.

Part affected may be pierced or wounded without pain.

Sometimes local; sometimes general.

Singular example.

Farther illustration.

able, in such parts of the body, to prick or cut themselves, or to run pins to any depth below the skin without pain. I have seen several striking examples of this peculiar affection. Sometimes the numbness has been limited to a single limb, but common to the whole of it, as the hand, for example, which at the same time has possessed a full power of motion. Sometimes the insensibility has been universal, or extended over the whole surface. Lamarck relates a case in which this want of feeling was confined to the arm; but at the same time was so complete that the man who laboured under it had no pain during the progress of a phlegmon; and who, on another occasion in which he broke his arm, felt nothing more than a crash, and merely thought he had broken the spade he was at work with. Dr. Yelloly has described another interesting case in the third volume of the Medico-Chirurgical Transactions. The patient, aged 58, had been first affected in Jamaica about three years before, and the affection had become permanent. "The hands," says Dr. Yelloly, "up to the wrists, and the feet half-way up the legs, are perfectly insensible to any species of injury, as cutting, pinching, scratching or burning. The insensibility, however, does not suddenly terminate; but exists to a certain degree nearly up to the elbow, and for some distance above the knee. He accidentally put one of his feet, some time ago, into boiling water, but was no otherwise aware of the high temperature, than by finding the whole surface a complete blister on removing it. The extremities are insensible to electrical sparks taken in every variety of mode."

β P. expers Complicata. Complicated numbness.

Striking examples.

As an example of the SECOND MODIFICATION or insensibility in the organ of touch, complicated with insensibility in several other senses, we may mention the following which Sauvages has copied from the Academy Collections: "The patient, a delicate young man, was suddenly in the morning deprived equally of speech and of the sense of touch, without any assignable cause or premonition. Punctured and pricked in different parts of his body, in his head, neck, back, shoulders, breast,

arms, abdomen, he felt nothing whatever, and even laughed at the singularity of the phænomenon; as, with the exception of numbness, and cutaneous insensibility, he laboured under no kind of disease. The complaint continued two days, and seems to have yielded to venesection."

Gz xV. Spec. II. β P. expers Complicata. Complicated numbness.

Insensibility of touch, either simple or complicated, is also felt as a symptom in apoplexy, palsy, catalepsy, epilepsy, syspasia, and syncope.

Found in one form or another in various complaints.

Where the numbness is complete and constitutional, it lies beyond the reach of medicine; where it is recent and less extreme, it will often yield to friction alone, or with camphorated oil or spirits to heat, especially that of the warm-bath, ether, volatile alkali and water, and the voltaic stream, or small shocks of electricity.

Remedial treatment.

SPECIES III.

PARAPSIS ILLUSORIA.

Illusory Sense of Touch.

IMAGINARY SENSE OF TOUCH, OR GENERAL FEELING IN ORGANS THAT HAVE NO EXISTENCE.

Gen. V. Spec. III. Pseudæsthesia of Ploucquet.

This is the pseudæsthesia of Ploucquet; and is frequently found among persons that have suffered amputation; who for a long time, after the loss of the separated limb, have still a sense of its forming a part of the body, and suffer in idea the same kind of pain or other inconvenience they endured before its removal.

Explanation.

Pathology. Founded on a particular law of sympathy chiefly operating on

It proceeds from that close sympathy which peculiarly prevails between the extremities of the living fibre in all organs whatever, and which, as we have already had occasion to show, extends also between the terminating links of various chains of action that run into organs at a

GEN. V. SPEC. III. Parapsis illusoria.

Illusory sense of touch.

considerable distance from each other. Of the first we have an example in the constrictive pain produced in the glans penis when the neck of the bladder is irritated by the lodgement of a calculus upon it. So if the fauces or upper end of the esophagus be tickled by a feather, the stomach, at the lower end, will be excited to nausea and sickness; and if the stomach itself feel suddenly faint and enfeebled, the rectum will at the same time give way, and involuntarily discharge its contents. Of the second kind of sympathy, or that which shows itself between remote organs engaged in a common chain of action, we have a striking instance in the swelling of the mammæ on the irritation of the uterus in pregnancy; and we had occasion to point out another equally striking, when treating, under the last class, of several species of marasmus, in which the chylific and assimilating organs, constituting the two extremities of the great chain of the nutritive function, maintain, on various occasions, a wonderful harmony both of energy and weakness *.

the extremities of vessels or organs. Illustrated.

Often on remote organs.

Morbid impression once effected, often of long continuance even after a removal of the cause.

Illustrated.

And hence, in a diseased limb, the pain which originates in the part affected is often extended, or even transferred, by sympathy to its tendinous extremities, where the morbid impression remains in many instances long after the diseased portion of it has been removed. Nor is this protraction of the impression to be wondered at, for we are perpetually witnessing cases, in which, when a morbid impression has once been established, it continues to manifest itself in the same manner. Thus, when dust has been blown into the eye, a sensation of pricking is just as much felt in the conjunctiva for some hours after the dust has been washed out, as when it was actually goading the tender tunic: and in like manner when an ague has been once generated in the animal frame by an exposure to marsh-miasm, the patient will be still subject for many weeks, or perhaps months, to the same return of febrile paroxysm, how widely soever he may re-

* Vol. II. Cl. III. Ord. IV. Gen. III. Spec. I. Marasmus Atrophia; and Spec. III. M. Climactericus.

move from the tainted region, and thus free himself from the cause of the disease.

GEN. V. SPEC. III. Parapsis illusoria. Illusory sense of touch. Remedial treatment.

In the case before us the illusory feeling becomes fainter by degrees, and as the affected fibres return to a healthy condition. And if in the mean time it be very troublesome, it may generally be relieved by a moderate use of narcotics.

Found as a symptom in some mental affections.

A like imaginary sensation is occasionally felt, as a symptom, in hypochondrias, and various other mental affections; in which ideas of pain and distress are mistaken for realities, and produce as severe a suffering.

GENUS VI.

NEURALGIA.

Nerve-ache.

ACUTE SENSIBILITY AND LANCINATING PAIN IN THE COURSE OF ONE OR MORE BRANCHES OF NERVES IN AN ORGAN; MOSTLY WITH AN IRREGULAR MOTION OF THE ADJOINING MUSCLES; RECURRENT IN SHORT PAROXYSMS WITH INDETERMINATE INTERVALS, OR REMISSIONS.

GEN. VI. Origin of generic term.

THE term NEURALGIA from *νεῦρον*, "nervus", and *ἄλγος*, "dolor", has been for many years employed with great accuracy to express a division of diseases which will probably hereafter be found to be peculiarly numerous, and, in some modification or other, to appertain to most of the organs of the animal frame.

Only one genus of this species known till of late. A second species indicated in the author's Nosology. A like view taken by Chaussier.

The term Neuralgia has of late been employed by various Nosologists to express this group of diseases, especially by Professor Chaussier of Paris, and Dr. Meglin of Strasburg. Yet, till of late, only the Neuralgia of the face seems to have been known to any Pathologist; M. Chaussier however has added the second of the present species under the name of Neuralgia *Plantaris*.

A third species now to be added.

Since the publication of the volume on Nosology I have been consulted on a very striking disease of the same kind, occurring, with a few local peculiarities of feature, in the female breast, and we are hence put into possession of another species, making the entire number three that have now exhibited themselves under precise and determinate characters. These species, therefore, are as follow:

1. NEURALGIA FACIEI.	NERVE-ACHE OF THE FACE.	GEN. VI. Neuralgia. Nerve-ache.
2. ——————— PEDIS.	NERVE-ACHE OF THE FOOT.	
3. ——————— MAMMÆ.	NERVE-ACHE OF THE BREAST.	

There can be little doubt that other organs besides these are subject to the same mis-affection; and it is not improbable that accident, on a minuter investigation of the subject, may shew that almost every part of the body may become a seat of Neuralgia. M. Recamier has of late met with a painful and intractable disease of the uterus, which he has regarded as of this kind, and has denominated uterine *Neuralgia*, though he does not speak of it with much decision *.

The corporeal senses which have hitherto passed within the range of our observations, as the seats of different genera of diseases, are external, and serve to convey impressions peculiar to themselves. It is, however, sufficiently known to every one that there is not an organ in the body but is possessed of nerves productive of a very different kind of sensibility from any of these, less distinct, perhaps, and elaborate, but the index of its weal or wear, its comfort or disquiet: and which may be sufficiently expressed by the name of *general feeling*. It is possible, indeed, that this general feeling may, in some degree, be differently modified in every organ; but as the distinctions, whatever they may be, are not nice enough for us to trace out and arrange, as they are in the local senses, it is sufficient for all the purposes of pathology to regard this feeling as common to all the sentient organs, and consequently as one and the same. We have already taken some notice of it in the proem to the present class †, and have observed that it has been described by some physiologists under the name of cœnesthesis, and by the

Nerves of general feeling, what; as distinguished from those of external feeling.

The sensation named cœnesthesis; selbstgefühl by the Germans.

* Tableau des Maladies observées à l'Hôtel-Dieu, dans les Salles de Cliniques, &c. Par L. Martinet, Revue Médicale, &c. 1824.

† *Ante*. p. 22.

GEN. VI. Neuralgia. Nerve-ache.

Germans is denominated gemeingefühl, or general feeling. Dr. Hubner published an inaugural dissertation on this subject in 1794, in which he enumerates its properties at some length *. I have never seen this treatise, but Sir Alexander Crichton, who has, describes it as a very ingenious production.

Species of disease appertaining to the present genus seated in these nerves.

It is these nerves of general sensibility that seem to constitute the seat of disease in the three species we are now about to enter upon, and consequently indicate that the present is their proper place in a system of physiological nosology.

SPECIES I.

NEURALGIA FACIEI.

Nerve-ache of the Face.

LANCINATING PAINS SHOOTING FROM THE REGION OF THE MOUTH TO THE ORBIT, OFTEN TO THE EAR, AND OVER THE CHEEK, PALATE, TEETH AND FAUCES; WITH CONVULSIVE TWITCHINGS OF THE ADJOINING MUSCLES.

GEN. VI. SPEC. I. Synonyms.

THIS is the trismus *maxillaris*, or t. *dolorificus* of M. de Sauvages, for it is not necessary to make a distinction between them, as Sauvages himself has done; by Dr. Fothergill it is denominated dolor crucians faciei. As the French give the name of tic to trismus or locked-jaw, they distinguish this first species of neuralgia, affecting the nerves about the jaw, by the name of tic douloureux, by which term the disease is, perhaps, chiefly known even in our own country in the present day. I shall have occasion to observe more at large, under the genus TRISMUS,

* Commentatio de Cænesthesi Dissert. Inaug. Medica.—Auctore. C. F. Hubner, 1794.

that the word *tic* is commonly supposed to be an onomatopy or a sound expressive of the action it imports; derived according to some, from the pungent stroke with which the pain makes its assault, resembling the bite of an insect; but, according to Sauvages and Soleysel, from the sound made by horses that are perpetually biting the manger when labouring under this peculiar affection. We do not, however, appear to be acquainted with the real origin of the term.

GEN. VI. SPEC. I. Neuralgia faciei. Nerve-ache of the face. Tic douloureux, what. meaning of the word tic.

From the symptoms by which this complaint is distinguished it is not difficult to decide concerning both its seat and nature. The character of the pain is very peculiar, and its course corresponds exactly with that of the nerves. The second branch of the fifth pair is, perhaps, more frequently affected than either the first or the third. But the portio dura of the seventh pair, which is distributed more extensively upon the face, under the name of pes anserina, is more frequently the seat of affection than any of the branches of the fifth pair seem to be; which is a matter of no small regret, as it is difficult for any operation to reach this quarter effectually, although it is a difficulty which we shall presently find has in one instance, at least, been encountered and surmounted. When, however, the disease is seated in the seventh pair of nerves we can be at no loss to decide concerning it, in consequence of the course and divarications of the pain, which commences with great acuteness in the fore-part of the cheek towards the mouth and alæ of the nose, sometimes spreading as high as the forehead, and ramifying in the direction of the ears. At other times the forehead, temple and inner angle of the eye on the side affected, and even the ball of the eye itself, form the chief lines of pungent agony, while from irritation of the lachrymal gland the eye weeps involuntarily. In this case we may reasonably suspect the disease to be seated in some part of the superior maxillary nerve, constituting the second branch of the fifth pair. And it is hence obvious that the radiation of the pain must vary according to the nerves or nervous twigs that are affected.

Symptoms of this species sufficiently indicate its seat and nature. Seat and course described. Diagnostics.

Line of pain changes as the different branches of nerves are affected.

GEN. VI. SPEC. I. Neuralgia faciei. Nerve-ache of the face.

The disease has been occasionally mistaken for rheumatism, hemicrania, and tooth-ache: yet the brevity of the paroxysm, the lancinating pungency of the pang, the absence of all intumescence or inflammation, the comparative shallowness, instead of depth, of its seat, and its invariable divarication in the course of the facial nerves or their offsets, will always be sufficient to distinguish it from every other kind of pain.

Disease has been mistaken for various others.

How distinguishable.

Cause little known.

Of its exciting causes we know but little. It seems sometimes to have been produced by cold, and sometimes by mental agitation in persons of an irritable temperament. But it has been found in the robust as well as in the delicate, in the middle-aged as well as in the old. In a few cases the irritation has been local, of which Mr. Jeffereys has given a very striking instance in a young woman who, when only six years old, fell down with a tea-cup in her hand, which was hereby broken, one of the cheeks lacerated, and a fragment of the tea-cup imbedded under the skin. The wound healed, though slowly and with difficulty; the buried fragment of the tea-cup was not noticed, and consequently was not extracted. From an early period a violent nervous pain returned nightly, and one side of the face was paralytic. These dreadful symptoms were endured for fourteen years: at the end of which time an incision was made through the cicatrix down upon what was then found to be the edge of a hard substance, and which appeared, when extracted, to be the piece of the tea-cup above noticed. From this time the neuralgia and paralysis ceased; the affected cheek recovered its proper plumpness, and the muscles their due power*.

Some times local.

Exemplified.

It is possible, as suggested by M. Martinet, that, as a symptom, it may sometimes occur in what he calls, and perhaps correctly, an inflammation of the nerves, or a thickening of the neurilemma in some particular organ, of which he has given various examples, accompanied with a reddish or even violet tinge, and studded with minute ec-

* Lond. Med. and Phys. Journ. Mar. 1823. p. 199.

chymoses*. But that this is not the only, or even the ordinary, proximate cause is clear, since in the cases alluded to, pressure upon the part is intolerable, while in idiopathic neuralgia it is commonly consolatory, and considerably diminishes the agony.

GEN. VI. SPEC. I. Neuralgia faciei. Nerve-ache of the face.

André appears to have been the earliest writer who remarked this painful affection with accuracy; and he succeeded in removing it permanently by applying a caustic to the infra-orbitary, or maxillary branch of nerves in one case in which a previous division of the nerve by the scalpel, as practised by Marechal, had produced only a temporary cure. André, who resided at Versailles, published his account in 1756, whimsically enough intervening it in a treatise on diseases of the urethra. A few unsatisfactory experiments and operations were given to the public in the course of the next fifteen years, chiefly by French practitioners, from which little of real value is deducible. In 1776, Dr. Fothergill, in the fifth volume of Medical Observations and Inquiries, communicated a very full and elaborate description and history of the disease: since which time M. Thouret and Pujol have each published a valuable paper on the same subject, in the Memoirs of the Society of Medicine of Paris, containing various cases collected and described with great minuteness; and we have already adverted to the more recent publications of Dr. Meglin and Professor Chaussier.

Nature of the disease first pointed out by André and attacked with success.

Afterwards fully described by Fothergill:

by Thouret and Pujol:

by Meglin and Chaussier.

It has of late been suspected that in some cases, at least, of this disease, the seat of irritation might be at the origin instead of at the extremity of the nerve; an idea that has arisen from the powerful sympathetic action manifested by the eye and the stomach forming the boundaries of the chain, upon which subject we shall have to speak at large when treating of the genus ENTASIA in the ensuing order. "The nerves," remarks Dr. Parr, "that supply the eye externally, and the slight connexion of the intercostal with the brain, are nearly from the same spot in the cerebrum, and it did not seem improbable, in

Seat of irritation sometimes suspected at the origin of the nerve.

* Mémoire sur l'Inflammation des Nerfs, &c. 1824.

GEN. VI. SPEC. I. Neuralgia faciei. Nerve-ache of the face.

the case alluded to, that the disease may have really been at the origin of the nerve, although felt as usual at its extremity." Dr. Parr was, in consequence, induced to try arsenic, and in one instance, he tells us, with a decidedly good effect. It is also said to have been since found serviceable in a few other cases. In Mr. Thomas's hands, however, we shall presently perceive that it completely failed. Mercury is also reported to have occasionally proved successful, and especially when carried to the extent of salivation; though in numerous instances it has been tried even to this last effect without any benefit whatever.

Hence arsenic tried:

and mercury,

even to salivation.

When about thirty years ago animal magnetism was a fashionable study in France, it was had recourse to for this disease among others, and had its day of favour as a popular remedy *. Of late, however, neuralgia has been attempted to be cured in France by an external use of acetic ether; while in Germany Dr. Meglin has employed pills composed of the extract of henbane, and sublimed oxyde of zinc, and according to his own statement with great success. But, beyond controversy, one of the most valuable medicines that have hitherto been tried is the subcarbonate of iron, for the first use of which, so far as I know, we are indebted to Mr. Hutchinson †, who commonly employs it in doses of a drachm three times a day. The instances of success appear to be very numerous, though this also, like all other medicines, has often failed. The action of the iron seems to depend upon its tonic power, the most valuable quality we can desire. But there is another energetic medicine which has also a fair claim to attention from a very different property—that of subduing the sensibility, and this is *prussic acid*. Mr. Taylor, of Cricklade, Wilts, has made repeated trials of this powerful sedative in various cases, and apparently with more rapid relief than is afforded by the carbonate of iron. He commenced his career with a drop of Scheele's

Acetic ether:

henbane and zinc.

Subcarbonate of iron.

Prussic acid.

* Edinb. Med. and Surg. Journ. July 1823.

† Cases of Neuralgia Spasmodica, &c. By B. Hutchinson, &c. 8vo. Lond. 1822.

preparation, in twenty-four hours, in divided doses: but as he grew better acquainted with the effects of the medicine, he gave a drop for a dose at first, and then increased the dose to two drops, repeating it three times a day. In one or two instances he has carried the quantity, by a gradual augmentation, to twenty-four drops a day, in the course of a month's use: and very often to five and six drops a day, by adding a drop to every day's account *. Time alone must determine whether the cures thus obtained will prove as permanent as those affected by the tonic power of the subcarbonate of iron. To induce ease, however, under any circumstances, and for any period of time, in the midst of so much torment, is an invaluable blessing.

GEN. VI. SPEC. I. Neuralgia faciei. Nerve-ache of the face.

In effect, neither narcotics, nor tonics, nor any other class of medicines that has hitherto been employed, can be in every case depended upon for a radical cure, though some of them, and particularly the subcarbonate of iron, are worthy of high commendation. "My father," says Dr. Perceval of Dublin, "in his manuscript comment on the present author's Nosology, was subject to neuralgia *faciei* for several years, and used a variety of medicines without relief. He was worse in close damp weather, and much worse when his mind was occupied. At length he had an issue inserted in the nucha, kept his bowels free with James's analeptic pills, and exchanged a town residence for the country. In this situation he soon threw off the disease, from which he was free for a considerable time before his death." Change of scene, a transfer of morbid action, and a recruited cheerfulness of spirits are valuable auxiliaries in the present as in every other nervous affection: but I much question whether these alone have ever operated a cure. A spontaneous cure is the work of time alone; and time, though often a long and tedious period is requisite, will generally accomplish it, and probably did so in the case before us. The fact is, that the nervous system in every part, and every

No medicine to be depended upon for a radical cure in all cases.

Case from Perceval.

Occasional palliatives may be found:

time alone works a natural cure if worked at all.

* Edinb. Med. and Surg. Journ. July 1823.

Gen. VI. Spec. I. Neuralgia faciei. Nerve-ache of the face.

ramification, becomes gradually torpefied by excess of action; and as the eyes grow blind and the nostrils inolfacient by strong stimulants applied to them, so the nervous twigs of every kind, after a long series of irritation from the present disease, become exhausted of power and obtuse in feeling: and it is probably by hastening this state that the most active stimulants, and the warmer tonics, produce whatever benefit is to be ascribed to them.

Acupuncture.

How far acupuncture or needle pricking, the zin-king of the Chinese, which we have already described under chronic rheumatism, might be useful, has not yet been determined. It has, at least, a fair claim for experiment, before having recourse to a curative attempt by the knife.

Chief radical cure to be found in a division of the affected nerves.

This radical cure consists in a division of the affected branches, provided they can be followed home. Dr. Haighton completely succeeded, some years ago, in a case in which he divided the sub-orbital branch of the fifth pair; and Mr. Cruickshank and Mr. Thomas more recently in a case of considerable complication, and where the affection was evidently not confined to the different branches of any single nerve. This last case is given by Dr. Darwin, whom the patient had intermediately consulted, in the second part of his Zoonomia, and is one of the most interesting sections of the work. The patient, a Mr. Bosworth by name, was between thirty and forty years of age. When he first applied to Dr. Darwin he complained of much pain about the left cheek-bone. Dr. Darwin suspected the antrum maxillare might be diseased; and, as the second of the grinding teeth had been lately extracted, directed a perforation into the antrum, which was done, and the wound kept open for two or three days without advantage. Afterwards by friction about the head and neck with mercurial unguent, he was for a few days copiously salivated, and had another tooth extracted by his own desire, as also an incision made in such direction as to divide the artery near the centre of the ear next the cheek, which gave also a chance of dividing a branch of the affected nerve; but without success. Internally opiates were

Interesting case related by Darwin.

Disease at first mistaken:

and medicines tried in vain.

administered in large quantity when the pain was exceedingly violent: bark being used freely in the intervals, but without effect.

Gen. VI. Spec. I. Neuralgia faciei. Nerve-ache of the face.

The pain spread in various directions from a point in the left cheek a little before the ear, sometimes to the nose, and forepart of the lower jaw, and sometimes to the orbit of the eye on the same side; the under part of the tongue being at times also affected. It returned on some days many times in an hour, and continued several minutes; during which period, it is well worth observing, as showing the connexion between an irregular sensitive and an irregular irritative power in the same muscles, the patient, says Dr. Darwin, seemed to stretch and exert his arms, and appeared to have a tendency to epileptic actions, so that his life was rendered miserable to himself to support, and to his friends to witness. The complaint gradually grew worse, and Mr. Bosworth removed to London for the purpose of again putting himself under Mr. Cruickshank's care, and of submitting to any operation he should recommend. The pain was now intolerably acute, and almost unremitting; and opiates afforded him little or no relief though taken to the quantity of six teaspoonsful of laudanum at a time. The operation of dividing the diseased nerve was therefore determined upon.

Progress of the disease.

Patient put under the care of Cruickshank, and Thomas,

"As the pain", says Mr. Thomas in his letter to Dr. Darwin, after its completion, "was felt more acute in the left ala of the nose, and the upper lip of the same side, we were induced to divide the second branch of the fifth pair of nerves as it passes out at the infra-orbital foramen. He was instantly relieved in the nose and lip; but towards night the pain from the eye to the crown of the head became more acute than ever. Two days after we were obliged to cut through the first branch passing out at the supra-orbital foramen: this afforded him the like relief with the first. On the same day the pain attacked, with great violence, the lower lip on the left side, and the chin; this circumstance induced the necessity of dividing the third branch, passing out at the foramen mentale. During

and operated upon with partial success.

Farther operations submitted to.

GEN. VI. SPEC. I. Neuralgia faciei. Nerve-ache of the face.

the whole period, from the first division of the nerves, he had frequent attacks of pain on the side of the tongue; these, however, disappeared on division of the last nerve.

"The patient was evidently bettered by each operation; still the pain was very severe, passing from the ear under the zygoma towards the nose and mouth, and upwards round the orbit. This route proved pretty clearly that the portio dura of the auditory nerve was also affected, at least the uppermost branch of the pes anserina. Before I proceeded, continues Mr. Thomas, to divide this—Mr. Cruickshank had operated hitherto—I was willing to try the effect of arsenic internally, and he took it in sufficient quantity to excite nausea and vertigo, but without perceiving any good effect. I could now trust only to the knife to alleviate his misery, as the pain round the orbit was become most violent; and therefore intercepted the nerve by an incision across the side of the nose, and also made some smaller incisions about the ala nasi. To divide the great branch lying below the zygomatic process, I found it necessary to pass the scalpel through the masseter muscle till it came in contact with the jaw-bone, and then to cut upwards; this relieved him as usual. Then the lower branch was affected, and also divided; then the middle branch running under the parotid gland. In cutting this, the gland was consequently divided into two equal parts, and healed tolerably well after a copious discharge of saliva for several days.

Additional division of nerves,

"I hoped and expected that this last operation would have terminated his sufferings, and my difficulties; but the pain still affected the lower lip and side of the nose, and upon coughing, or swallowing, his misery was dreadful. This pain could only arise from branches from the second of the fifth pair passing into the cheek, and lying between the pterygoideus internus muscle and the upper part of the lower jaw. The situation of this nerve rendered the operation hazardous, but after some attempts it was accomplished." This finished the series

and ultimate cure.

of operations, and restored the afflicted patient to perfect health.

Gen. VI. Spec. I. Neuralgia faciei. Nerve-ache of the face.

I have dwelt the longer on this interesting case, because it seems to show, first, that there is occasionally no certain cure but in the use of the knife; secondly, that a delay in performing the operation only affords time for the disease to spread from one branch of the affected nerve to another, and even to different branches of nerves in a state of contiguity: and thirdly, that the disease betrays the spasmodic character of the diathesis when minutely watched, even in cases in which this character is most obscure. Dr. Darwin objects properly enough to arranging this disease as a trismus, "since no fixed spasm," says he, "like the locked jaw exists in this malady." He adds, indeed, that in the few cases he has witnessed, there has not been any convulsion of the muscles of the face; but in Mr. Bosworth's case he has expressly noticed the morbid stretching of the arms, and the tendency to epileptic actions. Its proper place, however, seems to be where it is now arranged.

General remarks.

SPECIES II.

NEURALGIA PEDIS.

Nerve-ache of the Foot.

RACKING AND LANCINATING PAINS RANGING ABOUT THE HEEL; AND TREMULOUSLY SHOOTING IN IRREGULAR DIRECTIONS TOWARDS THE ANCLE AND BONES OF THE TARSUS.

Gen. VI. Spec. II. Synonym exemplified.

This is the neuralgia *plantaris* of Professor Chaussier: who mentions a very decided case of it, to which Dr. Marino, a physician of Piedmont, had been long subject. It commenced, he tells us, in early life; was relieved by the mineral waters of Vivadio; and still more by the

GEN. VI. SPEC. II. Neuralgia pedis. Nerve-ache of the foot.

pressure of a tight bandage. With advancing years it became less severe, the cause of which we have already explained in the preceding species, but never ceased altogether. It alternated with other nervous affections, and was at length complicated with convulsive asthma.

Case from which the present species was first described by the author.

In calling the attention of the medical profession to this species, by introducing it into the volume of Nosology, so long ago as the beginning of 1817, I had my eye directed to a very marked case which had then lately occurred to me in a clergyman of this metropolis, about forty-five years of age, but otherwise in firm health and cheerful spirits. He had for many years been a victim to it. The paroxysms were short, and of uncertain recurrence, but so acute as nearly to make him faint, and at length compelled him to relinquish the duties of the pulpit, for which from his zeal and eloquence he was admirably qualified, but where he had frequently been obliged to break off with great abruptness from the unexpected incursion of of a fresh paroxysm. The pain usually extended up the calf of the leg towards the knee, and ramified towards the toes in an opposite direction, and was usually compared by himself to that of scalding verjuice poured over a naked wound. The tibial branches of the popliteal nerve, and particularly the plantar twigs, seem in this species to have been the part chiefly affected, though it is probable that some of the offsets from the peroneal branch associated in some instances in the morbid action.

Curative efforts in vain.

Every therapeutic process that the art of medicine in the hands of the most experienced physicians of this metropolis could devise, was in this case tried in a long and tedious succession in vain. Sometimes external and sometimes internal preparations, or a tight ligature, appeared to afford a temporary alleviation, and to protract the intervals: but never any thing more. It was in consequence proposed by a surgeon of great eminence to amputate the leg, which was at one time on the point of being submitted to, though protested against by the present author, on two accounts. First, the uncertainty whether the morbid conditon of the nerve might not be seated chiefly in the

Amputation recommended.

Objections urged.

origin instead of in the extremity of the nerve; in which case, amputation could be of no avail; and secondly, the chance that in process of time the keen sensibility of the affected branches would be worn out and obtunded by the violence of the action. Such was the undecided and miserable condition of this patient at the time of noticing his case on the publication of the author's volume of Nosology. Since this period, the prediction that the disease would gradually wear itself out, has been completed: the paroxysms are now slight and tolerable, and the intervals much longer: and the patient has for nearly a twelvemonth been able to resume the duties of his profession without any interruption.

GEN. VI. SPEC. II. Neuralgia pedis. Nerve-ache of the foot.

Cure effected by time.

SPECIES III.

NEURALGIA MAMMÆ.

Nerve-ache of the Breast.

SHARP, LANCINATING PAINS DIVARICATING FROM A FIXED POINT IN THE BREAST; AND SHOOTING EQUALLY DOWN THE COURSE OF THE RIBS AND OF THE ARM TO THE ELBOW: THE BREAST RETAINING ITS NATURAL SIZE, COMPLEXION AND SOFTNESS.

GEN. VI. SPEC. III. Illustration of case on which the present species is founded.

ABOUT the year 1820, I was requested by Mr. Blair, to examine a young woman, then eighteen years of age, who, for more than two years had been subject to a painful disorder of the breast that seemed equally to defy all parallel and all mode of treatment. On examining into the nature of the symptoms, I found them as described in the preceding definition. The organ was full-formed, soft, and globular, without the slightest degree of inflam-

GEN. VI. SPEC. III. Neuralgia mammæ. Nerve-ache of the breast.

mation, or hardness. When the paroxysm of pain was not present it would bear pressure without inconvenience, but during the pain the whole breast was acutely sensible. The paroxysms returned at first five or six times in the course of the day, and were short and transient: but as the disease became more fixed, it became also more severe and extensive: for the agonizing fits at length recurred as often as once an hour, and sometimes more frequently: and from being comparatively concentrated, the lancinating shoots darted both downward in the course of the circumjacent ribs, and upwards to the axilla, whence they afterwards descended to the elbow, below which I do not know that they proceeded at any time. These fits were at length so frequent and vehement as to embitter her whole life, and incapacitate her from pursuing any employment; for it frequently happened that, if she attempted needle-work, her fingers abruptly dropped the needle a few minutes after taking hold of it, from a mixture of pungent pain and tremulous twitching. The twitching or snatches in the shoulder, for it at length reached to this height, were at one time so considerable as to give the patient an idea, to use her own words, that something was alive there; while, though the lancinating pain did not descend below the elbow, a considerable degree of trepidation reached occasionally to her fingers' ends. Her general health was in the mean time unaffected, and she was regular in menstruation.

Description and progress of the disease.

General health unaffected.

Prognostics.

I had no hesitation in regarding this as a non-descript species of neuralgia; and as little in communicating my fears that no plan of medicine we could lay down would be more than palliative, even if it should prove thus far beneficial, and that we must trust to time alone for a cure, and that obtuseness of sensibility which I have already noticed as a common consequence of high nervous irritation continued till the organ becomes exhausted and torpefied.

Course of medical treatment

Every remedial process, was nevertheless, tried in series for the purpose of obtaining relief, if not full success. Bleeding, local and general, frequently and pro-

fusely repeated; purgatives of all kinds; tonics and antispasmodics of all kinds; the hot and cold bath; electricity and galvanism in every form; rubefacients, blisters, setons, issues, and whatever else could be suggested, were enlisted into service in succession. But every thing was equally without avail: nor do I know that even a temporary relief was obtained by any of these. Narcotics of all kinds proved impotent: drowsiness, indeed, and a comatose stupor were hereby in various instances obtained, but the interval of wakefulness was as much as ever tormented with the same racking paroxysms. From the powerful influence of nux vomica in many cases of nervous affection, to some of which we shall have occasion to advert hereafter, I had some hope of producing a slight impression on the nerves affected: but the hope proved illusory: the patient took it in infusion as far as to about eight grains at a dose three or four times a-day, till her head was intolerably confused and every other part became numb, but the paroxysms were intractable.

GEN. VI. SPEC. III. Neuralgia mammæ. Nerve-ache of the breast. in every respect unavailing.

Failure of nux vomica.

The poor sufferer, whose relations were incapable of affording the resources of private practice, tried one dispensary after another, and at length one of the largest hospitals of this metropolis, without the smallest benefit, and from each was discharged as incurable. About six months since, however, being nearly four years from the commencement of the disease at home, and having utterly relinquished all medical means, with the exception of a seton under the breast, which was not dried up, she began to think herself rather better, and has continued to improve ever since, till a week ago, when her mother came to inform me she was worse again. This intelligence greatly surprised me, till I learned that the seton was now quite healed. It has since been opened and there is a hope of her again improving.

Disease diminished spontaneously.

Thus far was written in the first edition of this work. The patient, under the kindness of Sir William Blizard, obtained an entrance into the Margate Sea-bathing Infirmary, and after five or six weeks use of the marine-bath returned home—not indeed entirely free from pain, but

Subsequent information concerning this case.

GEN. VI. SPEC. III. Neuralgia mammæ. Nerve-ache of the breast.

in comfortable ease, and able to resume the use of her needle. About six months afterwards, however, the complaint returned with as much violence as ever, and again the most powerful tonics and antispasmodics were tried in vain. The sub-carbonate of iron, in the fullest doses employed by Mr. Hutchinson, were had recourse to and steadily persevered in, but to as little purpose as every other medicine. She has now again returned to the Margate Infirmary, where I hear she has again found benefit. In various cases, however, even in this species, I have reason to believe that the iron has proved as successful as in neuralgia *faciei*. And Dr. Alderson has given another example, in a very striking instance of mammary neuralgia, but in an older and less irritable period of life*.

* Cases of Neuralgia Spasmodica, &c. By B. Hutchinson, &c. 8vo. London, 1822.

CLASS IV.

NEUROTICA.

ORDER III.

CINETICA.

Diseases affecting the Muscles.

IRREGULAR ACTION OF THE MUSCLES OR MUSCULAR FIBRES; COMMONLY DENOMINATED SPASMS.

Class IV. Order III.

General character of muscular fibres in a massy form.

Having, in the Physiological Proem to the present class, glanced, as far as our space would allow, at the disputed question concerning the nature of muscular irritability, or *contractility*, to adopt the language of Dr. Bostock, and its affinity with sensorial or nervous influence, it is now only necessary at present to take a very brief view of the general character and mode of action of muscles as they appear to the naked eye in a massy form, or, in other words, as composed of an almost infinite variety of minute fibres.

Effects of muscular action upon muscles themselves.

A muscle thrown into action, increases in absolute weight, in density, and in power of resistance. It is also said to increase in absolute bulk; but the experiments upon this subject are contradictory; the middle or belly of the muscle, indeed, is at this time evidently enlarged, but then its length appears to be proportionally

Class IV. Order III. Cinetica. Diseases affecting the muscles.

diminished. Muscles constitute the cords, as bones do the levers, of the living frame; and in most cases the muscles grow tendinous, as the bones do cartilaginous, towards their extremities; by which means the fleshy and the osseous parts of the organs of motion become assimilated and fitted for that insertion of the one structure into the other upon which their mutual action depends; the extent and nature of the motion being determined by the nature of the articulation, which is varied with the nicest skill to answer the purpose intended. Whether, however, the substance of tendons consists of the same fibres as the belly of a muscle but only in a state of closer approximation and possessed of finer vessels which do not admit the introduction of red blood, or whether they form a distinct system of fibres, merely attached to those of the muscles, is at present undecided. It is certain that tendons possess nothing of the peculiar structure of muscles, and seem to be more nearly allied to the simple solid*.

Constitute the cords of the living frame.

Approximate the nature of bones as the latter do of muscles at their extremities.

Structure of tendons.

Though more compact than muscles often broken by their exertion.

Explained.

It appears singular, at first sight, that the tendinous fibres which thus seem to be compacted into a firmer and more substantial cord than those of the muscles, should be sometimes broken by muscular exertion, while the muscular fibres remain uninjured; yet this unquestionably depends upon their greater rigidity, and, consequently, inability of yielding to the force by which they are opposed. And hence it is that the bones themselves are sometimes broken in the same manner, as by a violent jerk, or a sudden and spasmodic contraction, of which we shall presently meet with examples, especially in the patella, the ribs, and the arms. The muscles themselves, however, are occasionally ruptured by a like irregular violence and excess of power, as the recti abdominis in tetanus, and the gastrocnemii in cramps.

Bones sometimes broken in the same manner.

Muscular action produced by a principle peculiar to life:

Muscular action, then, consists in a mutual attraction and concentration of the constituent fibres of muscles, in a manner peculiar to living matter, for we cannot

* See Dr. Bostock's Elementary System of Physiology, p. 67, 8vo. 1824.

imitate it by any combination or action of mechanical fibres. It is not, however, a contraction in every dimension, since in this case the muscular volume would be diminished; but in length only, attended with a proportional increase of bulk, so as to preserve the absolute volume unchanged, or nearly so.

Class IV. Order III. Cinetica. Diseases affecting the muscles.

It is easy to conceive, from these few remarks, that the force exerted by muscular contraction may be enormous; but by the mechanical physicians it was calculated in the most extravagant manner from premises in many instances wholly chimerical. Thus Borelli estimated the force with which the heart contracts, in order to carry forward the circulation of the blood, to be equal to not less than 180,000 lbs. at each contraction; while Pitcairn, applying the same speculation to the function of digestion, conceived that this process is accomplished by a muscular exertion divided equally between the stomach and the auxiliary muscles that surround it, amounting in the stomach alone to the force of 117,088 lbs. for which "had he assigned five ounces," says Professor Monro, "he would have been nearer the truth."* Yet we do not want these visionary calculations to prove the wonderful power possessed by muscular fibres; the facts we have already adverted to, and others we shall have to notice in the course of the present order, are sufficient to establish their astonishing energy, without having recourse to unfounded hypotheses, or exaggerated statements.

Its force enormous: but overrated by the mechanical physicians.

Singular examples of miscalculation.

In general, says Dr. Parr, in a very excellent article upon this subject†, it appears that the force with which a muscle contracts is in proportion to the number of its fleshy fibres, and the extent of the surface to which these fibres are attached; but its degree of contraction or the extent of its motion is in proportion to their length. The limits of contraction differ in the long and in the circular muscles; for the former do not contract more than one third of their length, but the circular fibres of

Law of muscular contraction: as exhibited in the long and circular muscles.

* Monro, Comp. Anat. Pref. p. viii. † Med. Dict. in verb. Musculus.

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the stomach, which in their utmost dilatation may be expanded to a foot in circumference, may, after much fasting, be reduced to the circle of an inch. It must, however, be added that in circular muscles no fibres pass completely round; bundles of fibres are collected and end at different points, while some begin where others end. Each may, therefore, admit of only a limited contraction, while the dilatation just mentioned may be the sum of the whole.

Action of muscles never intermitted but only diminished even in sleep.

The action of muscles is never intermitted, and only diminished in the sleeping state; though where the sleep is profound and lethargic the diminution amounts to almost a cessation, except in the voluntary organs. When muscles are not exercised, the sensorial or irritable fluid moves forward with an easy flow; or in the words of Haller "the vis insita is very slightly exerted"; but we can still trace its influence by the position which the limbs assume and discover the relative strength of the antagonising muscles. Thus we find the flexors stronger than the extensors; for, during sleep, the head falls forward, and the body, legs, arms, and fingers are slightly bent. The cause of this additional strength is easily explained; for the flexors have stronger and more numerous fibres; their insertion is farther from the centre of their motions, and under a larger angle, which must increase when flexion has begun. This superiority of the flexors bends the fetus in the womb into a round ball. The same superiority of power continues, though in a less degree, after birth, and hence frequent pandiculations are required to give activity and energy to the extensors, which they again lose in advanced age. On awaking from a sound sleep the same yawnings and stretchings occur from the same cause: and Bethel fancifully refers the crowing of the cock and the fluttering of his wings to a similar purpose. It is always useful in diseases to examine the position of the limbs during sleep, particularly the sleep of children. If they deviate from the ordinary degree of flexure to a more straight position, there is generally some irregularity in the state of tone, and of course in the vital influx.

Why in this state the flexors overbalance the extensors. Illustrated.

This doctrine of use in symptomatology.

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The irritability or contractility of a muscle is a very different power from that of elasticity. The latter always depends upon simple re-action, and is never a source of actual energy: it merely restores, in a contrary direction, the force which had been impressed, and the effect which it produces can never be greater than the amount of the cause. But in muscular contraction the mechanical effect produced is infinitely greater than the mechanical cause producing it, as when the organ of the heart recently detached from the body just dead is slightly scratched in its inside by a needle, it will contract so strongly as to force the point of the needle into its substance*. But the chief proof of the difference between the two is that the irritable power of a muscle is often excited without any mechanical cause at all, and from the mere influence of the will, which has no effect upon the simple elasticity of organs. Hence, while contractility belongs to the muscular structure alone, elasticity appertains to many other substances as well, whether animal, vegetable, or even metallic. Muscles also have their elasticity, but the principle is altogether of a different kind, though often confounded with the preceding by modern pathologists; and particularly in their use of the term *tonicity*†, which is often employed with little precision, and frequently means nothing more than this common principle of elasticity, to which indeed it seems directly to be applied by Dr. Cullen.

Contractility widely distinct from elasticity. Compared.

Tonicity often used synonymously with elasticity.

The muscles of the body may be divided into two grand classes, voluntary or animal, and involuntary or automatic. In the former we meet with some that are peculiarly remarkable for strength and continuity of contraction, as the greater part of the round muscles; and others as remarkable for mobility and vacillation; among which we may place most of the long muscles. These properties are strikingly exemplified in a state of disease, and call for particular attention; the muscles characterized by mobility presenting examples of atonic or agitatory

Voluntary or animal muscles as contradistinguished from involuntary or automatic.

Distinctive characters.

* Fordyce, Phil. Trans. 1788, p. 80.

† Bostock, Elem. Syst. of Physiology, p. 168, 8vo. 1824.

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spasm; while those that are conspicuous for continuity of action are chiefly subject to rigid or entastic spasm.

Continuity of action in the involuntary muscles and whence derived, compared with the supply of the voluntary muscles.

Continuity of exertion, however, is generally less evident in the voluntary than in the involuntary muscles, of which last some organs, as the heart, continue their efforts through life without intermission; though all of them relax or remit occasionally or periodically. For this greater permanency and regularity of action they are indebted to the peculiar provision which has been made for their supply of nervous power; for while the voluntary muscles are furnished in a direct line from the sensorium, whence indeed the close connexion they hold with it, the control the will exercises over them, and their catenation with the prevailing emotion of the moment: the involuntary muscles are dependent chiefly on the intermediate or ganglionic system described in the proem to the present class, and are more remotely connected with the sensorium: they are in consequence far less influenced by the variable impulses of the mental faculties, and are placed beyond the jurisdiction of the will. And hence the tenour of their action is more equable, more permanent, more uninterrupted, and less subject to fatigue or weariness.

Though more uniform in their action, still subject to abnormities, especially spasms.

Different organs and functions the subjects of different kinds of spasmodic motions.

A few exceptions to the general rule.

But as these organs are by no means free from the power of injury, or diseased action, they are also subject at times, in common with the voluntary organs, to those abnormal motions which are ordinarily denominated spasms: and it is not a little curious to observe the uniform tendency which different spasmodic affections manifest towards some organs or functions rather than towards others. Thus the vital function, in which the heart and lungs are such prominent agents, is chiefly disturbed by palpitation and syncope; the natural, or that in which the abdominal organs so generally co-operate, by hysterics; and the animal, extending through the range of the voluntary organs, by tetanus and epilepsy. In the prosecution of the present order, indeed, we shall see that this does not hold universally; that epilepsy, for instance, is often a disease rather of the stomach or intestines, than of any other organ, and that the heart is sometimes af-

fected with rigid instead of with clonic spasm: but the rule holds generally and is not essentially shaken by these casual exceptions.

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Dr. Cullen has contended that in all spasmodic affections the brain is the actual seat of disease, and that they consist in some morbid modifications of its energy. "The scope and purpose of all that he has said," he tells us, "is to establish the general proposition that spasmodic affections, whether they arise primarily in the brain or in particular parts, do consist chiefly, and always in part, in an affection and particular state of the energy of the brain: and that the operation of antispasmodic medicines must consist in their correcting this morbid or preternatural state in the energy of the brain, by their correcting either the state of preternatural excitement or collapse, or by obviating the too sudden alteration of these states."

Cullen's doctrine that all spasms depend upon a morbid state of the brain.

This proposition seems rather to follow from Dr. Cullen's singular doctrine concerning the mutable condition of the energy of the brain, and the immutable nature of the nervous power which is propagated from it by vibrations, than from the clear face of facts before us. Spasms, in many instances, are altogether local; they are confined to particular muscles, or particular sets of associate muscles, and have no effect on the brain whatever so as to disturb its energy; of which we have examples in hiccough, priapism, chorea, and often in palpitation. They depend upon some irritation existing not at the origin, but at the extremity of the nerves: and, where such is their source, even though the chain of morbid action should at length reach the brain and affect its energy, as in convulsions from teething, epilepsy from worms, or some palpitations from ossific or polypous concretions, all the antispasmodics in the world will afford no relief so long as the local cause of irritation continues to operate; while the moment this is removed, where it is capable of removal, as by the use of a gum-lancet or active anthelmintics, all the powers of the brain become instantly tranquillized; its faculties are rendered clear, its energy is re-invigorated, and its motive power or sensorial fluid flows forward in an uninterrupted tenour. The greater

Origin of this doctrine accounted for.

its erroneousness pointed out.

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number of spasmodic affections therefore, do not so much depend upon the state of the brain as of the living fibres that issue from it, and maintain a correspondence with it; for the stream may be vitiated while the fountain is untouched. We have seen, indeed, in the proem to the present class, from the concurrent results of various physiological experimenters, that although, while the organ of a brain exists, it exerts a certain influence over the principle of muscular motion, this principle is far less dependent upon the encephalon than that of general feeling or of the local senses: that it is found abundantly in animals totally destitute of a brain; and that hence, those possessing a brain may be excited not only into abnormal and spasmodic, but even into a continuation or re-production of regular and natural, motions of various muscular organs after the brain has been separated from the spinal chain, by stimuli applied to this chain, or even by the artificial breath of a pair of bellows.

Argument further illustrated.

Sensific and motific fibres.

Spinal chord double.

We have seen also that the nervous filaments of the muscles are of two kinds, sensific and motific, the former proceeding from the cerebellum, or the posterior trunk of the spinal chord, to which it gives rise, and the latter from the cerebrum, or anterior trunk of the same double chord: and, as these two sets of filaments do not necessarily concur in the same affection, it is obvious that the muscles of a limb, or of the whole body, may be thrown into the most violent agitation, or the firmest rigidity, without much, or perhaps any degree of painful emotion, or increased sensibility. And we can hence readily account for the little complaint that is made by patients upon this subject, on their being freed from a severe paroxysm of tetanus, convulsion-fit, or hysterics.

Why often little pain felt during severe fits of tetanus or convulsions.

The following are the genera of diseases which will be found to appertain to the present order:

I.	ENTASIA.	CONSTRICTIVE SPASM.
II.	CLONUS.	CLONIC SPASM.
III.	SYNCLONUS.	SYNCLONIC SPASM.

GENUS I.

ENTASIA.

Constrictive Spasm.

IRREGULAR MUSCULAR ACTION PRODUCING CONTRACTION, RIGIDITY, OR BOTH.

Gen. I. Origin of generic name and its necessity explained.

ENTASIA is derived from the Greek ἔντασις, "intentio", "vehementia", "rigor", from ἐντείνω, "intendo". By many nosologists the genus is called tonos, or tonus, which is here dropped in favour of the present term, because tonus or tone is employed by physiologists and pathologists, in direct opposition to irregular vehemence or rigidity, to import a healthy and perfect vigour or energy of the muscles; and by therapeutists to signify medicines capable of producing such or similar effects.

The genus ENTASIA includes the following species:

1.	ENTASIA PRIAPISMUS.	PRIAPISM.
2.	——— LOXIA.	WRY-NECK.
3.	——— RHACHYBIA.	MUSCULAR DISTORTION OF THE SPINE.
4.	——— ARTICULARIS.	MUSCULAR STIFF-JOINT.
5.	——— SYSTREMMA.	CRAMP.
6.	——— TRISMUS.	LOCKED-JAW.
7.	——— TETANUS.	TETANUS.
8.	——— LYSSA.	RABIES. CANINE MADNESS.
9.	——— ACROTISMUS.	SUPPRESSED PULSE.

SPECIES I.

ENTASIA PRIAPISMUS.

Priapism.

PERMANENT RIGIDITY AND ERECTION OF THE PENIS WITHOUT CONCUPISCENCE.

GEN. I. SPEC. I.

Origin of the specific name.

THE specific term is derived from the name of Priapus, the son of Venus and Bacchus, who is usually thus represented in paintings and sculptures, but with a concupiscent feeling.

How used by Galen.

Galen applies the term also to females, as importing a rigid elongation of the clitoris without concupiscence.

Peculiarly a disease of debility.

Spasm is, in all instances, a disease not of vigour, but of debility with a high degree of irritability: and there is no case in which this is more striking than in the present species. It has been found occasionally in infancy; but it is far more frequently an attendant upon advanced years. It has sometimes also followed upon cold, and especially local cold, clap, dysury, and the use of cantharides as a cure for seminal weakness. It has at times been a result of free living, and particularly hard drinking. The spasms consist in a stiff and permanent contraction of the erectores penis, unconnected with any stimulus arising from a fulness of the vesiculæ seminales.

Sometimes chronic.

Dr. Darwin says, he had met with two cases where the erection, producing a horny hardness, continued two or three weeks without any venereal desire, but not without pain. The easiest attitude was lying upon the back with the knees bent upwards. The corpus cavernosum urethræ at length became soft, and in a day or two the whole rigidity subsided. One of these patients had been a free drinker, had a gutta rosacea on his face, and died suddenly a few months after his recovery from the present

complaint. It is singular that this spasm should sometimes continue after death: at least we have accounts of such cases in Marcellus Donatus and other writers.

Gen. I. Spec. I. Entasia Priapismus. Priapism.

As the disease is a case of both local and general debility, its cure is in most instances difficult. Antispasmodics and tonics, are the only medicines that promise relief, as camphor, opium, bark, warm aromatics, warm-bathing, cold-bathing: but the whole are often tried without effect.

Cure difficult.

SPECIES II.

ENTASIA LOXIA.

Wry-neck.

PERMANENT CONTRACTION OF THE FLEXOR MUSCLES ON THE RIGHT OR LEFT SIDE OF THE NECK, DRAWING THE HEAD OBLIQUELY IN THE SAME DIRECTION.

Gen. I. Spec. II. Origin of specific term.

The term LOXIA is derived from the Greek, λοξὸς, "obliquus, tortus"; whence loxarthrus in surgery, an obliquity of a joint of any kind, without spasm or luxation. By the Greeks, however, the term was specially applied to the joints or muscles of the neck.

Causes.

This disease, in its genuine form, proceeds from an excess of muscular action, particularly of the mastoid muscle on the contracted side. But we frequently meet with a similar effect from two other causes: one in which there is a disparity in the length of the muscles opposed to each other, and consequently a permanent contraction on the side on which they are shortest; and the other in which, from cold or a strain, there is great debility or atony on the side affected, and, consequently, an incurvation of the neck on the opposite side, not from a morbid excess, but an overbalance of action.

GEN. I. SPEC. II. Entasia Loxia. Wry-neck.

This species, therefore, offers us the three following varieties:

α Dispars. Natural wry-neck.	From disparity in the length of the muscles opposed to each other.
β Irritata. Spastic wry-neck.	From excess of muscular action on the contracted side.
γ Atonica. Atonic wry-neck.	From direct atony of the muscles on the yielding side.

α E. Loxia dispars. Natural wry-neck: mostly congenital. Occasional causes.

The FIRST VARIETY is mostly congenital, though sometimes produced by severe burns or other injuries. And a like effect occasionally issues from a cause that may be noticed in the present place, though not connected with a morbid state of the muscles; a displacement of the muscles from an incurvation in the vertebræ of the neck, by which, though the antagonist muscles be of equal length and power, those on the receding side of the neck are kept on a perpetual stretch, while those on the protruding side are in a state of constant relaxation. The other TWO

β γ E. Loxia irritata. E. Loxia atonica. Spastic wry-neck. Atonic wry-neck.

VARIETIES are commonly the result of cold, or inflammation, or a strain; often by carrying too heavy loads on the head. M. Boyer gives instances of the disease produced by moral causes: and Wepfer relates the case of a man who had a wry-neck, occasioned by a convulsive action of the muscles on one side of the neck, which appeared whenever he was tormented by chagrin, but ceased as soon as he was restored to a state of mental tranquillity*.

Mode of treatment.

The cure must depend upon the nature of the cause. In colds and strains, warmth, the friction of flannel, and the stimulus of volatile or camphor liniment combined with opium, will be found most serviceable, as tending to diminish pain, and restore action to the weakened organ. In direct spasms the same process will also frequently be found useful, but the application of cold water as a tonic and antispasmodic will often answer better. Where the

* Traité de Maladies Chirurgicales, &c. Tom. VII. 8vo. Paris, 1681.

antagonist muscles are of unequal length, the case lies beyond the reach of medical practice, and, if relieved at all, can only be so by a surgical operation. If the cervical vertebræ be incurvated, but the bones sound, the disease may not unfrequently be made to yield to a skilful application of machinery by the hands of an ingenious surgeon. It sometimes happens, however, that the bones in this case are soft and occasionally carious, and the slightest motion of the head is attended with intolerable pain. Setons have here been found serviceable, with an artificial support of the head; but this kind of affection is often connected with a constitutional softness of the bones, of which we shall have to treat in the first order of the sixth class, under the head PAROSTIA *flexilis*.

Gen. I. Spec. II. Entasia Loxia. Wry-neck. Treatment.

SPECIES III.

ENTASIA RHACHYBIA.

Muscular Distortion of the Spine.

PERMANENT AND LATERAL CURVATURE OF THE SPINE, WITHOUT PARALYSIS OF THE LOWER LIMBS: MUSCLES OF THE BACK EMACIATED; MOSTLY, WITHOUT SORENESS UPON PRESSURE.

Gen. I. Spec. III.

Various kinds of spinal distortion.

DISTORTION of the spine is produced in various ways; and it is chiefly owing to a want of due attention to this fact, that so much confusion has of late prevailed respecting the real nature of the particular case to be treated, and the particular treatment that ought to be adopted.

Spinal distortion as first described by Pott; scrofulous and producing caries.

The disease, under this general name, was first introduced before the public with any considerable degree of notoriety by Mr. Pott, as connected with a palsy of the lower extremities, and as dependent upon a scrofulous diathesis; which at length fixed itself upon some part of

GEN. I. SPEC. III. Entasia Rhachybia. Muscular distortion of the spine.

the vertebral column, softened or rendered carious the bones that became affected; and hereby necessarily produced crookedness, and a morbid pressure upon the right line of the spinal marrow.

Rhachetic source.

This is a case that often happens, and a like effect occasionally occurs in a very early period of life, from a rhachetic, instead of a scrofulous diathesis; though from the greater facility with which the principle of life is able to adapt itself to deviations from the ordinary laws of health, at this latter period than afterwards, a paralysis of the lower extremities is less common; and even the mischiefs incidental to a misformation of the chest less fatal. So that while the disease of a hump-back can rarely take place in puberty or later life, without a serious injury to almost every function, we often find it occur in infancy, without making much encroachment on the general health.

In these cases the disease a primary affection of the bones.

In all cases of this kind the malady is primarily and idiopathically an affection of the vertebral *bones*; and there is always to the touch a mollescence in their structure, or a manifest soreness and ulceration. And from the peculiar contour of the vertebral column the distortion is always from within outwards, forming what has been called an *angular*, in contradistinction to a *lateral* curvature. So that the characters of the osseous gibbosity are sufficiently clear and specific.

Producing angular distortion, as opposed to lateral.

Muscular ligamentous or cartilaginous contortion.

But the muscles of the vertebral column, and their appendages, the ligaments and cartilages into which the latter are inserted, are of as much importance to its healthy contour as its bones. And hence any morbid affection in any of these moving powers may as essentially interfere with the natural curve of the spine, and the well-being of the constitution, as a disease of the vertebral bones.

These organs sometimes affected singly, sometimes jointly.

It is possible that these are all affected in particular instances, sometimes separately, sometimes jointly*; but there can be no doubt that the muscular fibres of the neck, back, and loins, those on which all the complicated movements of the vertebral column depend, and which

But most frequently the muscles.

* Copeland's Observations on the Spine, p. 15.

give rise to more than three hundred distinct muscles in the whole, are most frequently thus enfeebled either in part or in their entire range; though an enfeebled state of any of these organs must produce an inability of preserving the spine in its natural sweep and equilibrium. And where distortion proceeds from this cause the indications are in most cases as clear as where it is the result of a diseased condition of the bony structure: for first the morbid curvature instead of being *from within outwards*, takes place *laterally*, the crookedness being manifestly on the right or the left side according as the muscles on the one side or the other overpower the action of their antagonists; there is little or no soreness upon pressure, unless indeed the bones or their cartilages should ultimately become affected from the protracted state of the disease; and, the distortion being less abrupt or angular than in the ossific gibbosity, the lower limbs are not affected with paralysis.

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In these cases the distortion lateral alone.

The distinction therefore between the osseous and the muscular distortion of the spine is clear and definite; and so far as regards the peculiar character of the curvature was minutely noticed by the Greek writers, who identified the first by the names of LORDOSIS or CYRTOSIS, according as this curvature was anterior or posterior, and the second or the lateral curvature by the term HYBOSIS, from ὑβὸς *(hybus)* incurvus. It is from this term that the author has derived the name which he has ventured to assign to the present species—RHACHYBIA—as an allowable contraction of *rhachyhybia*, literally SPINAL INFLEXION. Swediaur has denominated it from the same source, *kyboma Scoliosis* *.

Distinction observed by the Greek writers.

Lordosis, what.

Cyrtosis, what.

Hybosis, what.

The distinction is very accurately pointed out by Mr. Pott, who,—while he affirms that "the ligaments and cartilages of the spine may become the seat of the disorder (scrofula) without any affection of the vertebræ"; in which case "it sometimes happens that the whole spine, from the lowest vertebra of the neck downwards, gives way

Well discriminated by Pott.

* Tom. II. p. 740.

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laterally, forming sometimes one great curve to one side, and sometimes a more irregular figure, producing general crookedness, and deformity of the whole trunk of the body, attended with many marks of ill health;"—yet admits that paralysis of the lower limbs never accompanies cases of this sort, so far as his experience had extended, nor even that untempered, and mis-shapen structure of the spine which occurs at birth or during infancy from a rhachetic softness of the bony material. "I have never", says he, "seen paralytic effect on the legs from a malformation of the spine, however crooked such a malformation might have rendered it, whether such crookedness had been from time of birth, or had come on at any time afterwards during infancy.—None of those strange twists and deviations which the majority of European women get in their shapes, from the very absurd custom of dressing them in stays during their infancy, and which put them into all directions but the right, ever caused any thing of this kind, however great the deformity might be. The curvature of the spine which is accompanied by *this affection of the limbs* (i. e. that which takes place from a diseased condition of the bones themselves, subsequently to childhood, and from a supposed scrofulous diathesis), whatever may be its degree or extent, is at first almost always the same; that is, it is always from within outwards, and seldom or never to either side".

Pott's views too often mistaken, and why.

Now it has unfortunately happened that, as Mr. Pott's remarks were written chiefly to explain this last form of spinal distortion, and addressed to the single cause of scrofula, the hints he has given respecting distortions from every other cause have been too often forgotten; and the moment a young female is found to have a tendency to a vertebral distortion of any kind, it has too generally been taken for granted that the bones were in a diseased state, or on the point of becoming so; that the patient was labouring under the influence of a strumous diathesis, which was manifesting itself in this quarter; and all the severe measures of caustics or setons, with an undeviating permanent confinement to a hard mattress, or inclined

plane, for many weeks or months, which a strumous affection of this kind calls for and fully justifies, has been improvidently had recourse to, with a great addition to the sufferings of the patient, and, in many instances, no small addition to the actual disease which has been so unhappily misunderstood.

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Mr. Baynton seems justly chargeable with having adopted this general view of the subject, and extending it indiscriminately to every case. Mr. Wilson, who though he conceived the disease to originate in a rachetic rather than a strumous diathesis, and had recourse, as we shall observe presently, to a different mode of treatment, seems to have stretched his parallel hypothesis over the same extent of ground. And Mr. Lloyd, who has lately favoured the profession with a valuable work on the same subject, in like manner contemplates every case of spinal distortion as issuing from a common and that a strumous cause; to which cause also it has since as uniformly been assigned by Dr. Jarrold *. Mr. Lloyd, correctly indeed, distinguishes between the angular and the lateral curvature; and with equal correctness observes that "in the former there is always some destruction of some portion of the vertebral column, and often, for a considerable time, progressive destruction of bone, cartilage, and ligament, and the vertebræ undergo precisely the same changes as the extremities of other bones in scrofulous diseases of the joints"; while he adds that "in the latter there is no destruction of parts, but merely an alteration of structure"; that "a wasting of the muscles always attends it in a greater or less degree"; and that "it has been supposed by some authors that the cause of the curvature is entirely in the action of the muscles. But although", he continues, "this may be and most probably is the *immediate* cause, I am much more inclined to believe that the *primary* cause is in the vertebræ: that scrofulous action is set up in them, which increases their vascularity, and softens their texture."

Views of Baynton: of Wilson: of Lloyd: and Jarrold.

* Enquiry into the Causes of the Curvature of the Spine, with Suggestions, &c. 8vo. 1824.

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Here, then, is a distinct recognition of the two forms of morbid distortion of the spine, to which I am anxious to direct the attention of the reader: and each of them is allotted its peculiar seat, and diacritical signs; the bones, with manifest injury of the bones, and the muscles with manifest injury of the muscles. The rest is matter of mere hypothesis, and needs not urge us into a discussion.

General admission.

Two chief and distinct forms of spinal distortion.

The muscular most common; and hence, by some said to be the only form of contortion.

Opinion of Grant: of Dods: of Harrison: seated solely in the connecting ligaments.

So obvious and so much more common indeed is muscular than osseous distortion of the spine, that other pathologists, from this fact chiefly, have contended, that this is the only form of the disease in its commencement. Such was the opinion of the late Mr. Grant, of Bath, and such is the opinion of Dr. Dods, of the same city, in an interesting tract he has lately published on this subject*: while Dr. Harrison refers its origin to "the connecting ligaments of the vertebræ. These", he observes, "get relaxed, and suffer a single vertebra to become slightly displaced"; in consequence of which, he adds, "the column loses its natural firmness, other bones begin to press unduly upon the surrounding ligaments; they in turn get relaxed and elongated, by which the dislocation is increased, and the distortion permanently established. The direction becomes *lateral*, *anterior*, or *posterior*, according to circumstances: but the malady has, in every instance, the same origin and requires the same mode of cure." †

This last hypothesis like the rest too limited.

There is much ingenuity in this explanation, and I have no doubt that it is a correct expression of various cases of vertebral distortion. It chiefly fails, like the osseous hypothesis, in too wide a spirit of simplification, and in allowing no other origin in any instance than that which forms the key-stone of its own pretensions. Admitting the disease to commence in the connecting ligaments, the associating muscles must soon be involved in the mischief, while, if it commence in the latter, the ligaments which unite them to the bones cannot long

Illustrated.

* Pathological Observations on the Rotated or Contorted Spine, 8vo. Lond. 1824.

† Lond. Med. and Phys. Journ. No. CCLXIV.

continue unaffected. So that the question is merely one of primogeniture, and imposes little or no difference in the mode of treatment. Nay, even the bones themselves, by being irregularly pressed upon, may at length suffer in such parts from increased absorption, become thinner and more spongy, or even ulcerate and grow carious; so as, in process of time, to give a direct proof of osseous or angular contortion, though induced instead of taking the lead.

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One of the chief difficulties, in cases where we have no reason to apprehend a morbid state of the bones, consists in accounting for the change that seems to take place in the relative position of several of the vertebræ or their processes; and especially in the greater elevation or prominence of their transverse processes on one side, while those on the other are scarcely perceptible. And it is in truth chiefly to solve this question that most of the hypotheses of the present day are started in opposition to each other. The idea of an actual dislocation of the vertebral bones, which enters into that of Dr. Harrison, would sufficiently account for the fact, if such a dislocation could be unequivocally shown. But while the change of position does not seem in any instance to amount to a complete extrusion of a vertebra from its seat of articulation, the ease and quietude with which, under judicious management, it often seems to recover its proper position, and to evince its proper shapes, are inconsistent with the phænomena that accompany a reduction of luxated bones in every other part of the body.

Whence the change that occurs in the relative position of various vertebræ or their processes.

Subject differently explained: by Harrison;

The explanation therefore has not been felt satisfactory to a numerous body of pathologists; and Dr. Dods has hence offered us another solution, which is also highly ingenious, and may perhaps in the end be found correct in those cases in which the miscurvature is very considerable, and especially where it becomes double or assumes a sigmoid figure. He supposes, in the first place, that the whole disease in its origin is seated in the extensor muscles of the back, or that part of them to which it is confined: more especially in the quadratus lumborum, sacro-lumba-

by Dods.

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lis, and longissimus dorsi. He supposes, next, that the right hand being habitually more exerted than the left, the effect of such surplus of force, in consequence of our throwing the body towards the left to preserve its centre of gravity, and hence strongly contracting the muscles of this side of the spine, must fall in a greater degree upon those muscles, and more dispose them "to suffer disorganization and become contracted"; and he hence accounts for the greater frequency of contortion on the right side than on its opposite. He then proceeds to account for the single or double curvature which the contortion effects, by remarking that the morbidly contracted muscles of the left side, in overcoming the action of the muscles of the right, do not drag the vertebræ forward towards themselves in a direct line, but rotate the vertebræ to which they are attached, because of the angles formed, relatively, between the vertebræ and the pelvis (the points of origin and insertion of these muscles), and the force of their contraction acting upon moveable, horizontal, or transverse levers, namely, the transverse processes of the vertebræ*.

Double curvature accounted for.

Rotation of the vertebræ.

Effects of such rotatory change.

Morbid curvation of the spine, therefore, in the opinion of Dr. Dods, does not consist in an evulsion of separate vertebræ from their natural course and position, but in a twist of a great part or the entire column, by which means the morbid lateral flexure is nothing more than the natural sigmoid sweep of the vertebral chain, wrested more or less round to one side, as by the turning of a cork-screw.

Whatever displacement is met with in the ribs or the other bones of the chest, is necessarily a result of this first deviation from the line of health. "All the ribs", he observes, "have a double attachment to the vertebræ; one, by their heads, to the bodies of them, and the other, by their tubercles to the transverse processes. When the vertebræ, then, are made to rotate upon each other, in the manner described, by the permanent contraction, and this, for example, to the right side, which is the

* Ut suprà, p. 98.

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more frequent direction they take, from the causes noticed, they, by this movement, push out or backwards the heads of the ribs of the left side, and force their sternal extremities considerably forward, because of the quick circular turn which the ribs make between their angles and their points of attachment to the vertebræ, and the very small motion, from such a formation of them, requisite here to produce them. Together with this movement of the ribs, which produces the projection of the left side of the chest in front, they are also made, from their double attachment to the vertebræ, to fall down and approximate, or, as it were, overlap each other, at their angles. This causes that hollowness or sinking in of the left side of the chest behind. The falling down of the ribs here described appears to me to be in part owing, also, to the permanent contraction of the sacro-lumbalis muscle, which is inserted into all their angles. While these movements take place with the ribs on the left side of the body, the very opposite, of necessity, happens to those on the right. By the rotatory movement of the vertebræ, the ribs on the right side have their heads contrary to those on the left, drawn inwards, and their sternal extremities made to recede backward: while their double connexion with the vertebræ causes them, contrary also to those of the left side, to be raised up and separated from each other at their angles. This rising up and separation of the ribs at their angles, is what produces the projection of the right side of the chest behind."

Morbid situation of the scapulæ accounted for.

From this general change of position, and particularly the twist of the ribs, Dr. Dods accounts for the unnatural situation of the scapulæ, and in many instances of the clavicles and the sternum, with the falling down of the right shoulder. He observes, moreover, that though the contortion of the spine most frequently takes place to the right side, yet that it occasionally takes place to the left. That the whole column is not always moved round, but only a part of it; and that hence, instead of a profile of three morbid flexures brought into view, which invariably follows in the former case, we have often a profile of only two: and that where the muscles of both

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sides of the column become contracted from position, which sometimes takes place, the greater number of the vertebral joints acquire an ancylosis, and the body is arched backwards.

Hypothesis ingenious:

There is much ingenuity through the whole of this explanation, which plausibly accounts for that ridgy line of projection so frequently felt on the left side of the loins, when the morbid curvation is on the right, ascending nearly to a level with the spinous processes, while there is not only no such ridge on the opposite side, but even no appearance of the transverse processes. Upon the hypothesis before us these processes are conceived to be equally elevated on the one side and depressed on the other, which gives us the two phænomena of an unnatural and ridgy prominence in the former line, and of an unnatural disappearance in the latter. The hypothesis nevertheless (for at present it cannot be entitled to a higher appellation) requires further elucidation and support: and, after all, can never altogether reach the precise object at which it aims, that of establishing itself at the expense of every other view, and especially of subverting the doctrines of a diseased action of the other moving powers or their appendages, the ligaments of the spinal muscles, or the cartilages into which they are inserted; a morbid condition of which is often capable of proof from the very limited area of pain and tenderness to which, on pressure, the disease seems to be confined: to say nothing of the affection of the vertebral bones themselves, in which, as already observed, spinous distortion sometimes commences, though from a very different source, and in which, even when derived from the source now contemplated, it sometimes terminates.

but cannot be adopted exclusively.

The muscular form of distortion most common in the present day. Explained.

There can be no doubt, however, that the spinal distortion of the present day is a disease far more frequently of the muscles and their appendages than of the bones, and is the result of a want of equilibrium between the antagonist forces on the one side and on the other of the vertebral column, as well those of the trunk as of the back; in consequence of which this column is deranged in its natural sweep, and either twisted or deflected in particular parts,

or in its whole length: all the other changes in the general figure and deviations from the general health being dependent upon this primary aberration.

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It is hence a disease of muscular debility or irregular, and hence clonic, action in the fibres of the yielding muscles, and an inability to resist the encroachment that is made on them by their more powerful antagonists.

Muscular debility the proximate cause.

The complaint almost invariably shows itself from the age of puberty to that of mature life, though sometimes later; and is nearly limited to females, and among females, to those of delicate habits, and who are especially disciplined in the false and foolish rules for obtaining a fine figure. It is hence a perpetual inmate in our public female schools, and is by no means an unfrequent attendant upon domestic education.

Commencement of the disease, where chiefly found.

The progress of the disease may be so easily collected from the physiological survey we have already taken, that a few words in addition is all that is necessary to be added.

Progress.

The complaint first shows itself by a general listlessness and aversion to muscular exertion of any kind, and an unwonted desire to lounge and loll about. No signs of constitutional disease, however, are as yet manifest; the nights are not disturbed, the appetite does not fail, the evacuations are regular, and the pulse unaffected. There is soon afterwards a sense of weariness, and even at times uneasiness, about the back and especially the loins; and if the muscles of these parts be minutely examined, several of them will give proof of flaccidity and extenuation. If no steps be taken at this time to arrest the disease in its march, or if the steps taken be injudicious or inadequate, the vertebral column will soon be involved in the morbid action; and especially, as Mr. Ward observes, "on the occurrence of any particular disturbance to the constitution"*; its numerous joints will lose their nicely

* Practical Observations on Distortions of the Spine, Chest, and Limbs, p. 36, 8vo. 1822.

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adjusted poise; they will in various parts be left too loose on the one side, and dragged too rigidly on the other; and the elegant contour of the spinal chain will progressively be broken in upon. All the other changes, whether upon the general form or the general health, which progressively take place in the advance of the disease, are entirely consecutive upon the symptoms before us, and may be anticipated by any one. From the morbid contest which is thus continually going on between the antagonist muscles, their internal organization must necessarily become greatly affected, and the growing debility which is manifest in the contractile and extensile power of their aggregate fibre, will enter into every part of every separate fibril, and affect their vis insita. The flow of nervous power, instead of being uniform, will take place in irregular jets; and, for reasons already urged in a preceding part of this work *, a clonic though occult agitation, will succeed to a tenour of measured energy. The debility and irregular action of one muscle will spread by sympathy or association to various others; and from the derangement of the bones of the spine and the chest, the functions of respiration and digestion, and consequently, in a greater or less degree, all the other functions of the body must be interfered with in their respective powers, so that there is scarcely any other disease but may follow: and the frame will become generally emaciated.

Sequel of general and constitutional mischief.

Occasional causes.

As the proximate cause is debility of the extensor muscles of the back or loins on either side, the occasional cause will consist in whatever has a tendency to produce such debility. Too rapid growth is a frequent source of this complaint; a casual strain of the muscles on either side is a source not less common; chlorosis or any other constitutional weakness may lead to the same effect; and assuredly the use of stiff and girding stays, or any other part of that fashionable compression which is designed in the school-discipline of the present day to mould the form into a somewhat different and more grace-

Too rapid growth: strains: chlorosis:

school-discipline of the day.

* Clonic Spasm, infrà, Cl. IV. Ord. III. Gen. II.

ful shape than perhaps the niggard hand of nature has intended—such as back-boards, braces, steel-bodices, or steel-crutches, spiked collars, neck-swings, and even education-chairs. The tendency of all these to produce deformity where it does not exist, and to aggravate it where it does, is forcibly pointed out by Dr. Dods; who nevertheless seems to censure, with rather more acrimony than needful, the whole system of school-drilling education as practised in many of our most fashionable establishments.

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A course of discipline for giving grace and elegance to the growing form, if conducted with judgement, devoid of rigorous compression to the expanding organs, and allowing a sufficient alternation of relaxation and ease, so far from being injurious to the health and strength of the general frame, has a natural tendency to invigorate it. But the greater frequency of the lateral distortion of the spine in our own day, compared with its apparent range in former times, together with the increased coercion and complication of the plan laid down in many of our fashionable schools for young ladies, seems clearly to indicate that some part at least of its increased inroad is chargeable to this source: and the following remarks of Mr. Pott upon the various instruments applied to a growing girl in order to prevent a crooked shape, have a wider claim to attention in the present day than when they were first given to the world. "These", says he, "are used with design to prevent growing children from becoming crooked or mis-shapen; and this they are supposed to do by supporting the back-bone, and by forcing the shoulders unnaturally backwards. The former they cannot do; and in all cases *where the spine is weak, and therefore inclined to deviate from* a right figure, the latter action of these instruments must contribute to, rather than prevent, such deviations, as will appear to whoever will, with attention, examine the matter. If, instead of adding to the embarrassment of children's dress by such iron restraints, parents would throw off all of every kind, and thereby give nature an opportunity of exerting her own powers; and if, in all cases of manifest debility, recourse

How far such discipline may be salutary:

but appears to be carried too far in many places: as justly observed by Pott.

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were had to friction, bark, and cold-bathing, with due attention to air, diet, exercise and rest; the children of the opulent would perhaps stand a chance of being as stout, as straight, and as well-shapen as those of the laborious poor."

Uncultivated compared with cultivated youth.

The simple fact is that the system of discipline is carried too far, and rendered much too complicated; and ART, which should never be more than the hand-maid of NATURE, is elevated into her tyrant. In rustic life we have health and vigour, and a pretty free use of the limbs and the muscles, because all are left to the impulse of the moment to be exercised without restraint; the country girl rests when she is weary, and in whatever position she chooses or finds easiest; and walks, hops, or runs as her fancy may direct when she has recovered herself; she bends her body, and erects it as she lists, and the flexor and extensor muscles are called into an equal and harmonious play. There may be some degree of awkwardness, and there generally will be, in her attitudes and movements; and the great scope of female discipline should consist in correcting this. With this it should begin, and with this it should terminate, whether our object be directed to giving grace to the uncultivated human figure or the uncultivated brute. We may modify the action of muscles in common use, or even call more into play than are ordinarily exercised, as in various kinds of dancing; but the moment we employ one set of muscles at the expense of another; keep the extensors on a full stretch from day to day by forbidding the head to stoop, or the back to be bent; and throw the flexors of these organs into disuse and despisal; we destroy the harmony of the frame instead of adding to its elegance; weaken the muscles that have the disproportionate load cast upon them; render the rejected muscles torpid and unpliant; sap the foundation of the general health, and introduce a crookedness of the spine instead of guarding against it. The child of the opulent, while too young to be fettered with a fashionable dress, or drilled into the discipline of our female schools, has usually as much health, and as

little tendency to distortion, as the child of the peasant; but let these two, for the ensuing eight or ten years, change places with each other; let the young heiress of opulence be left at liberty; and let the peasant-girl be restrained from her freedom of muscular exertion in play and exercise of every kind; and instead of this let her be compelled to sit bolt upright, in a high narrow chair with a straight back that hardly allows of any flexion to the sitting muscles, or of any recurvation to the spine; and let the whole of her exercise, instead of irregular play and frolic gaiety, be limited to the staid and measured march of Melancholy in the Penseroso of Milton:

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> With even step and musing gait;

to be regularly performed for an hour or two every day, and to constitute the whole of her corporeal relaxation from month to month, girded moreover, all the while, with the paraphernalia of braces, bodiced stays, and a spiked collar,—and there can be little doubt that, while the child of opulence shall be acquiring all the health and vigour her parents could wish for, though it may be with a colour somewhat too shaded with brown, and an air somewhat less elegant than might be desired, the transplanted child of the cottage will exhibit a shape as fine, and a demeanour as elegant as fashion can communicate, but at the heavy expense of a languor and relaxation of fibre that no stays or props can compensate, and no improvement of figure can atone for.

Surely it is not necessary, in order to acquire all the air and gracefulness of fashionable life, to banish from the hours of recreation the old rational amusements of battledore and shuttlecock, of tennis, trap-ball, or any other game that calls into action the bending as well as the extending muscles, gives firmness to every organ, and the glow of health to the entire surface.

Muscular amusements not inconsistent with grace of figure.

Such, and a thousand similar recreations, varied according to the fancy, should enter into the school-drilling of the day, and alternate with the grave procession and the measured dance, for there is no occasion to banish

Such should intermix with those in ordinary use.

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either; although many of the more intricate and venturous opera dances, as the Bolero, should be but occasionally and moderately indulged in; since, as has been sufficiently shown by Mr. Shaw, "we have daily opportunities of observing, not only the good effects of well-regulated exercise, but also the actual deformity which arises from the disproportionate developement that is produced by the undue exertion of particular classes of muscles*. It may be observed," continues the same excellent writer, "that the ligaments of the ankles of some of the most admired dancers are so unnaturally stretched that, in certain postures, as in the Bolero dance, the tibia nearly touches the floor. So bad, indeed, is the effect occasionally produced by a frequent stretching of the ligaments, that the feet of many of them are deformed: for the ligaments which bind the tarsal and metatarsal bones together become so much lengthened by dancing and standing on the tips of the toes, that the natural arch of the foot is at length destroyed." †

Such the best preventive means.

Such then are the best preventive means against muscular or ligamentous distortion of the young female frame, and especially of the vertebral column, in conjunction with pure air, plain diet, and well-regulated hours of rest.

Remedial means.

If, notwithstanding such means, a tendency to crookedness on either side should manifest itself, evidenced by the symptoms already pointed out, no time should be lost in making an accurate examination of the spinal chain: and if such tendency should be accompanied with pains about the pelvis and lower extremities, our attention should be particularly directed to the state of the vertebræ seated in the centre of the different flexures of the column, but especially of the lumbar, for it is probable, in this case, that one or more of them may be in a state of inflammation.

Cupping sometimes necessary.

Where this is the case, the usual means of taking off inflammatory action, and especially depletion, by cupping-

* On the Nature and Treatment of Distortions, &c., p. 15. Lond. 8vo. 1823.

† Id. p. 17.

glasses, should be instantly had recourse to. But where the cause is debility alone, and a want of equilibrium between antagonist sets of muscles, rest, reclination, general tonics, especially myrrh, steel, and in many cases the sulphate of quinine, sea-bathing, and in effect whatever may tend to introduce a greater firmness of fibre and general vigour of constitution, constitute the best plan of treatment.

Gen. I. Spec. III. Entasia Rhachybia. Muscular distortion of the spine. More commonly tonics.

To these should be added a series of friction, and especially of shampooing or manipulation applied down the whole course of the spine, and particularly that part of it where the distortion is most evident: and it may be of advantage, as proposed by Dr. Dods, to direct the course of the manipulation in a particular manner to such transverse processes of the vertebræ as appear peculiarly elevated, so as artfully, and by insinuation, to assist in restoring them to their proper position. It will also be found expedient in most cases to illine the hand with oil or some other unctuous substance, in order to prevent the friction from irritating or excoriating the skin.

Friction and shampooing: should be applied with dexterity.

Those who ascribe the disease to a strumous diathesis in every instance, have of course a medical treatment of their own adapted to this view of the case. Such is the practice of Dr. Jarrold who has lately written a treatise upon this subject containing many valuable hints, but who limits the seat of the malady to the intervertebral cartilages, as he does its cause to a strumous taint. His Materia Medica, therefore, for the present purpose, is nearly restricted to burnt sponge and carbonate of soda. "Conceiving", says he, that "there might be some relation between it and bronchocele, I have made use of similar remedies."* To which he occasionally adds, when the debility is considerable, twenty drops of nitric acid daily. And with this simple process he tells us that he has been so successful in a restoration of health, strength, plumpness and uprightness, that "medical treatment is seldom further required, unless the appetite and digestion be impaired."

How treated when held as a strumous complaint. Plan of Jarrold: his alleged success.

Not acceding to this causation, I have not tried the

* Enquiry into the Causes of the Curvature of the Spine, &c. ut supra, p. 119.

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plan; which seems here to have been far more successful than in bronchocele itself; even when the more powerful aid of iodine is called into co-operation, which it is singular that Dr. Jarrold does not appear to have had recourse to. To all the confederate means, however, of recumbency, friction, shampooing, pure air, and occasional exercise, he is peculiarly friendly: and as these have of themselves effected a cure in the hands of various other practitioners, it is not improbable that Dr. Jarrold is far more indebted to such confederates than he is aware of; and that his auxiliaries have been of more service to him than his main force.

Probably less owing to his direct than his auxiliary means.

Position.

It has been made a question of some importance, which is the best position for a patient to rest in who is labouring under the complaint before us, or has a striking tendency to it; as also what is the best formed couch for him to recline upon?

Nature of couch.

All seem to agree that the couch should be incompressible, or nearly so, in order that the weight of the body may be equally, instead of unequally sustained, and not one part elevated and another depressed: and hence a mattress is judged preferable to a bed; and a plain board is by many esteemed preferable to a mattress. It is also very generally agreed that the board or mattress should form an inclining plane, so that the body, placed directly on the back, may be kept perpetually on the stretch; while Dr. Dods maintains in opposition to this general opinion, that the line should be horizontal, or even curved; that a position on the back is by no means necessary, and that a posture of extension cannot fail of being injurious, and adding to the strength or extent of the disease.

Inclined plane, and inclined position.

Curved position proposed by Dods.

Either may be right or wrong, occasionally.

Either of these opinions may be right or wrong, according to the nature of the case; and hence neither of them can be correct as an universal proposition. Ease and refreshment are the great points to be obtained, and whatever couch, or whatever position will give the largest proportion of these is the couch or the position to be recommended: whether that of supine extension, or relaxed flexure.

Dr. Dods, who refers all kinds of lateral distortion to

Gen. I. Spec. III. Entasia Rhachyïda. Muscular distortion of the spine.

debility of the fibres of the extensor muscles, proscribes an extended position in every instance; and, as already observed, recommends a curved relaxing couch in its stead, so that the patient may sink into it at his ease, instead of being put upon the stretch. The advice is good so far as the opinion is correct, and the disease is dependent upon debility of the extensor muscles alone: for here nothing can afford so much ease to the patient as such an indulgence. But it is not to be conceded that the fibrous structure of these muscles form the seat of the disease in every case, and consequently the recommendation will not always apply: for the flexor muscles may be affected, or the debility be seated in the extensor ligaments, or the vertebral cartilages with which they are connected. I have at this moment under my care a lady just of age who, for four years past, has been labouring under a slight affection of lateral distortion, feeling much more of it whenever she suffers fatigue, or is affected in her spirits. A position strictly supine, and somewhat extended, upon a hard mattress or a level floor is the only posture that affords her ease, and takes off the sense of weight on the spine, and oppression on the chest. She has often tried other positions but in vain. To this, therefore, she has uniformly recourse after dinner, and, occasionally, at other times in the day as well. Pure country air has also been of great service, but above all things sea-bathing. She has just returned from an excursion around the Devonshire coast. The first day's journey, though in a reclined position in an open landaulet, with every attention that could afford ease and accommodation, proved so fatiguing, and produced so much pain in the spine, that it was doubtful whether she would be able to proceed. A better night, however, than was expected, capacitated her for another trial, and the fatigue was considerably less: on the third or fourth day she had an opportunity of beginning to bathe; and by a daily perseverance in the same was enabled, soon after reaching Teignmouth, to engage in long walks, climb its loftiest hills, and enjoy the entire scenery: her appetite became almost unbounded, and her flagging spirits were restored to vivacity.

Illustrated.

GEN. I. SPEC. III. Entasia Rhachybia. Muscular distortion of the spine.

Hence gestation, pure air, sea-bathing, and general tonics to combine with the preceding.

Rest interrupted rather than continued: except in extreme cases.

It is hence perfectly clear that while that position and that mode of dress are most to be recommended which afford the highest degree of ease and comfort; gestation, pure air, sea-bathing, and every other kind of tonic, whether external or internal, are also of the utmost importance; and that perfect and continued rest, in whatever position it be tried, is far less efficacious than when interrupted by such motion as can be borne, though with some degree of fatigue, and the other tonic auxiliaries just adverted to. In extreme cases, indeed, such exercise as is here adverted to should be postponed till the debilitated and, most probably, irritable organs have lost some part of their disease: yet the motion of friction or manipulation by a skilful and dextrous hand may still be adverted to, and should supply its place.

SPECIES IV.

ENTASIA ARTICULARIS.

Muscular Stiff-joint.

PERMANENT AND RIGID CONTRACTION OF ONE OR MORE ARTICULAR MUSCLES OR THEIR TENDONS.

GEN. I. SPEC. IV.

THE joints of the limbs are as subject to muscular contractions as the neck: and, in many instances, from like causes: the following are the varieties of affection hereby produced:

α Irritata. Spastic stiff-joint.	From excess of action in the muscles contracted.
β Atonica. Atonic stiff-joint.	From direct atony in the yielding muscles.
γ Inusitata. Chronic stiff-joint.	From long confinement or neglect of use.

Gen. I. Spec. IV. Entasia articularis. Muscular stiff-joint.

Besides the ordinary causes of cold, inflammation, and strains, by which the first and second variety are produced, the former has sometimes followed upon a sudden fright*, upon drying up a cutaneous eruption, or checked perspiration†. Freind, also, mentions a case in which it has been cured by a fright‡; and Baldinger one in which it disappeared on the revival of a suppressed eruption which had given rise to it§. Rheumatism has often produced it, and particularly the second variety, in the joint of the knee and thigh-bone.

Causes.

Treatment.

In a case of the latter kind, it was successfuly attacked by Richter‖, with a cautery of a cylinder of cotton. In this and the third variety much benefit is often derived from repeated and long continued friction with a warm hand, and particularly if illined with some stimulant balsam or liniment. In an obstinate contraction of the fingers succeeding to a fractured arm, Dr. Eason relates an instance in which the rigidity suddenly gave way to a pretty smart stroke of electricity after every other mean had failed; and the patient had the use of his fingers from this time¶. Such exercise, moreover, or exertion of the limb, should be recommended as it may bear without fatigue. The cold-bath, as an antispasmodic, has sometimes been serviceable in the FIRST VARIETY, and more frequently, as a tonic, in the SECOND.

Chronic stiff-joint often produced from habitual neglect of muscles affected.

Most men exhibit proofs of the THIRD VARIETY or chronic stiff-joint, from a neglect of using many of their muscular powers: for nearly a fourth part of the voluntary muscles, from being seldom called into full and active exertion, acquire a stiffness which does not naturally belong to them, while many that, by exercise, might have been rendered perfectly pliant and obedient to the will have lost all mobility, and are of no avail. Tumblers and buffoons are well aware of this fact, and it is principally by a cultivation of these neglected muscles that they are able to assume those outrageous postures and gri-

Explained.

* Starke, Klin. Instit. p. 32.
† Paulini Cent. I. 39.
‡ Vit. Gabriel.
§ N. Magazin. Band. XI. 78.
‖ Chir. Bibl. Band. X. 219.
¶ Edin. Med. Comment. V. p. 84.

Gen. I. Spec. IV. Entasia, articularis. Muscular stiff-joint. Treatment.

maces, and exhibit those feats of agility which so often amuse and surprise us. It is a like cultivation that gives that measured grace and firmness as well as erect position in walking, by which the soldier is distinguished from the clown; and that enables the musician to run with rapid execution, and the most delicate touch, over keys or finger-holes that call thousands of muscular fibres into play or into quick combinations of action, which in the untutored are stiff and immoveable, and cannot be forced into an imitation without the utmost awkwardness and fatigue.

SPECIES V.

ENTASIA SYSTREMMA.

Cramp.

SUDDEN AND RIGID CONTRACTION AND CONVOLUTION OF ONE OR MORE MUSCLES OF THE BODY: MOSTLY OF THE STOMACH AND EXTREMITIES, VEHEMENTLY PAINFUL, BUT OF SHORT DURATION.

Gen. I. Spec. V. Origin of specific name:

Systremma, literally "contortio, convolutio", "globus", is derived from *συστρέφω*, "contorqueo", "convolvo in fascem". Stremma, the primary noun, is an established technical term for "strain, twist, wrench"; and the author has hence been induced to add the present term to the medical vocabulary in the sense now offered, for the purpose of superseding and getting rid of *crampus* which has hitherto been commonly employed, though at the same time commonly reprobated, as a term intolerably barbarous, derived from the German krampf. The proper Latin term is, perhaps, "raptus nervorum"; whence opisthotonia or opisthotonus is denominated by the Latin writers "raptus supinus". But raptus is upon the whole of too general a meaning to be employed on the present

invented to supersede the barbarous term crampus.

Raptus of the Latins, what.

occasion, unless with the inconvenience of another term combined with it.

GEN. I. SPEC. V. Entasia Systremma. Cramp.

The parts chiefly attacked with cramp are the calves of the legs, the neck, and the stomach. The common causes are sudden exposure to cold, drinking cold liquids during great heat and perspiration, eating cold cucurbitaceous fruits when the stomach is infirm and incapable of digesting them, the excitement of transferred gout and overstretching the muscles of the limbs, in which last case it is an excess of reaction produced by the stimulus of too great an extension. Hence many persons are subject to it, and especially those of irritable habits, during the warmth and relaxation of a bed, and particularly towards the morning when the relaxation is greatest, the accumulation of muscular or irritable power most considerable, and the extensor-muscles of the legs are strained to their utmost length to balance the action which the flexor-muscles have gained over them during sleep. Cold night-air is also a common cause of cramp, and it is a still more frequent attendant upon swimming, in which we have the two causes united of cold and great muscular extension. An uneasy position of the muscles is also in many cases a sufficient cause of irritation; and hence we often meet with very painful cases of cramp in pregnant women down the legs, or about the sides, or the hypogastrium.

Parts chiefly affected.

Causes.

In the last case, how produced, especially in the long muscles.

Other causes of cramp.

How produced in swimming.

When the hollow or membranous muscles are affected, they feel as though they were puckered and drawn to a point; the pain is agonizing, and generally produces a violent perspiration: and if the stomach be the affected organ the diaphragm associates in the constriction, and the breathing is short and distressing. If the cramp be seated in the more fleshy muscles, they seem to be writhed and twisted into a hard knot, and a knotty induration is perceivable to the touch accompanied with great soreness, which continues for a long time after the balance of power has been restored.

Symptoms when the hollow or membranous muscles are affected.

When the more fleshy muscles are affected.

In common cases where the calves of the legs are affected, an excitement of the distressed muscles into their usual train of exertion is found sufficient: and hence

Mode of treatment.

GEN. I. SPEC. V. Entasia Systremma. Cramp.

most people cure themselves by suddenly rising into an erect position. I have often produced the same effect and overcome the re-action without rising, by forcibly stretching out the affected leg by means of other muscles, whose united power overmatches that of the muscle that is contracted. Warm friction with the naked hand, or, which is better, with the hand illined with camphorated oil or alcohol, will also generally be found to succeed. A forcible exertion of some remote muscles, which thus collects and concentrates the irritable power in another quarter, will also frequently effect a cure; and it is to this principle alone, I suppose, we are to refer the benefit which is said to arise from squeezing strenuously a roll of brimstone, which suddenly snaps beneath the hold. The brimstone snaps from the warmth of the hand applied to it; but its only remedial power consists in affording a something for the hand to grasp vehemently, and thus excite a sudden change of action.

Vulgar plan of squeezing a roll of brimstone explained.

Treatment where the stomach is affected.

Where the stomach is affected, brandy, usquebaugh, ether, or laudanum afford the speediest means of cure; and it is often necessary to combine the laudanum with one or the other of the preceding stimulants. Here also the external application of warmth, and diffusible irritants, as hot flannels moistened with the compound camphor liniment, are found in most cases peculiarly beneficial. Exciting a transfer of action to the extremities, as by bathing the feet in hot water, or applying mustard sinapisms to them, is frequently of great advantage; as is the use of hot, emollient and anodyne injections, whose palliative power reaches the seat of spasm by sympathetic diffusion, and often affords considerable quiet. Here, also, the patient should be particularly attentive to his diet and regimen, confining himself to such viands as are most easy of digestion, and least disposed to rouse the stomach to a return of these morbid and anomalous actions; for a habit of recurrence is soon established, which it is difficult to break off.

Treatment under pregnancy.

In pregnancy, where the crampy spasms are often migratory and fugitive, the position should frequently

be changed, so as to remove the stimulus of uneasiness by throwing the pressure upon some other set of muscles: and if the stomach be affected with gout, opium, rhubarb, chalk, or aromatics should be taken on going to rest.

Gen. I. Spec. V. Entasia Systremma. Cramp.

Best preventives.

The best preventives when the cause is constitutional, are warm tonics, and habituating the affected muscles to as much exercise as their strength will bear: and hence the same forcible extension used in swimming which produces cramp the first or second time of trial, will rarely do so afterwards.

Found also as a symptom in many diseases.

Cramp is also found, as a symptom, and as one of the severest symptoms of the disease, in various species of colic and cholera; in which cases it must be treated according to the methods already pointed out under those respective heads.

SPECIES VI.

ENTASIA TRISMUS.

Locked-Jaw.

PERMANENT AND RIGID FIXATION OF THE MUSCLES OF THE LOWER JAW.

Gen. I. Spec. VI.

This disease is by the French writers called *tic*. The technical term is derived from the Greek τρίζω, "to gnash or grind the teeth"; which, like the French synonym, is supposed by the lexicographers to be an onomatopy, or a word formed from the sound that takes place in the act of gnashing.

French synonym.

Origin of the technical term.

Both the Greek and French terms formerly applied to a different affection:

In truth it was to a disease in which morbid gnashing formed a symptom, that both the Greek and French term was originally applied; for the trismus of the old writers consisted, not of a rigid, but a convulsive or agitatory spasm of the lower jaw; an affection comparatively trifling, and rarely to be met with, and when it does occur appertaining to the CLONUS of the present system of nosology, the clonic spasm of authors in ge-

GEN. I. SPEC. VI. Entasia Tismus. Locked-jaw.

neral. And the use of trismus or tic to import a state of muscle directly opposed to that which it first indicated, is another striking proof of the incongruous change which is perpetually occurring in the nomenclature of medicine, for the want of established rules and principles to give fixation and a definite sense to its respective terms.

and recently so applied by Akerman.

Dr. Akerman is the only writer of reputation I am acquainted with in recent times, who has used trismus in its original intention; or rather who has united its original with its modern meaning. For he employs the term generically; and arranges under it the two species of trismus *tonicus*, being that now under consideration, and trismus *clonicus*, or the disease it originally denoted. But this arrangement is uncalled for, and inconvenient, and has not been received into general use: the term trismus being, with every writer of the present day, limited to the first of these two species alone, notwithstanding the origin of the word. And hence, as it is so generally and completely understood, there would be an affectation in changing it for any other. The Germans call it kinnbakkenzwange, which is precisely parallel with the LOCKED-JAW of our own tongue.

German synonym.

Variously and irregularly arranged by Cullen: at one time a distinct genus from trismus which was also made a distinct genus: at other times both reduced to a variety of a common genus.

Dr. Cullen in the first edition of his Nosology, made trismus and tetanus, our next species, distinct genera, but he altered his opinion before the publication of his First Lines, and regarded them as nothing more than degrees or varieties even of the same species. "From the history of the disease," says he, "it will be evident that there is no room for distinguishing the tetanus, opisthotonos, and trismus or locked-jaw as different *species* of this disease; since they all arise from the same causes, and are almost constantly conjoined in the same person."* In consequence of which, in the later editions of Dr. Cullen's Synopsis, in which the supposed error is attempted to be corrected, the disease is introduced with a very singular departure from nosological method: for first, tetanus is employed as the term for a distinct genus,

* Pract. of Phys. Book. III. Sect. I. Chap. I. § MCCLXVII.

defined "a spastic rigidity of many muscles"; and next under this generic division are given no species whatever but two varieties of degree alone, to the first of which is again applied the name of TETANUS, defined "the half or whole of the body affected with spasms"; and to the second that of TRISMUS; defined "spastic rigidity chiefly of the lower jaw."

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Passing by this irregularity of method, the proper view of the subject seems to lie in a middle course; in contemplating trismus and tetanus, not as distinct genera, or mere varieties of a single disease, but as distinct species of a common genus; and under this view it is contemplated in the present arrangement. Trismus bears the same relation to tetanus as synochus does to typhus; the two former, like the two latter, may proceed from a common cause and require a similar treatment; and the first may terminate in the last. But trismus, like synochus, may run its course alone, and continue limited to its specific symptoms. And as Dr. Cullen has thought proper to make synochus and typhus distinct genera, he ought at least to have ranked trismus and tetanus as distinct species.

Proper place in a middle line of arrangement, each forming a distinct species. Analogy.

Trismus is found in all ages, sexes, temperaments, and climates. In warm climates, however, it occurs far more frequently than in cold; and chiefly in the hottest of warm climates. Dr. Cullen observes that the middle-aged are most susceptible of the disease, men more so than women, and the robust and vigorous than the weakly. Other animals are subject to this complaint as well as man, particularly parrots; and from many of the causes* that affect the human race.

Found generally in all ages, temperaments, and climates.

In other animals as well as in man.

Causes.

These causes, for the most part, are chilliness and damp operating upon the body when heated, and hence sudden vicissitudes of heat and cold; wounds, punctures, lacerations, or other irritations of nerves in any part of the body, whence it has not unfrequently followed on venesection when unskilfully performed†, and still more fre-

* Bajon. Abhandlungen Von Krankheit auf der Insel Cayenne, &c.

† Delaroche, Journ. de Med. Tom. xv. p. 213. Forestus. Lib. x. Obs. 111. Schenck, Obs. L. I. N. 250.

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quently on amputation, worms or other acrimony in the stomach, and especially in those of infants. We have thus the three following varieties offered to us, which, however, chiefly differ in symptoms peculiar to the period of life in which the disease is most disposed to show itself, or in the interval between the casual excitement and the spastic action:

α Nascentium. Locked-jaw of infancy.	Attacking infants during the first fortnight after birth.
β Algidus. Catarrhal locked-jaw.	Occurring at all ages, after exposure to cold and damp, especially the dew of the evening, the symptoms usually appearing within two or three days.
γ Traumaticus. Traumatic locked-jaw.	Occurring as the consequence of a wound, puncture, or ulcer; chiefly in hot climates; and rarely appearing till ten days or a fortnight after local affection.

Pathological principle difficult: but attempted to be explained by the author in part, especially the principle of remote action between the chief seat of the disease and that of primary injury.

The pathology is highly difficult, if not mysterious, and has hence been purposely avoided by most preceding writers. Dr. Cullen expressly avows that he "cannot in any measure attempt it*." There is one principle, however, to which I have frequently had occasion to direct the reader's attention, which will help us in a considerable degree to develope something of its obscurity, and to account more especially for so remote a separation between the seat of primary irritation and that of spasmodic excitement, which constitutes, perhaps, its most embarrassing feature. The principle I allude to is the sympathy that prevails throughout the whole of any chain of organs, whether continuous or distinct, engaged in a common function, and which is particularly manifest at its extremities; so that let a morbid action commence in whatever part of the chain it may, the extremities, in

* Pract. of Phys. Book III. Sect. I. Chap. I. § MCCLXIX.

Analogies. Sympathy of remote organs when united in a common chain of action.

many instances, become the chief seat of distress, and even of danger. We had occasion to notice this law of the animal economy when treating of PARAPSIS ILLUSORIA, or that imaginary sense of feeling and of acute pain in a limb that has been amputated and is no longer a part of the body, which we referred to the principle before us: and farther noticed, by way of illustration, the pain often suffered at the glans penis from the mechanical irritation of the neck of the bladder by a calculus. So, irritating the fauces with a feather excites the stomach, and even the diaphragm, to a spasmodic action, and the contents of the organ are rejected. Irritating the ileum, as in ileac passion, produces the same effect upon the stomach and esophagus; at the same time that the other extremity of the canal is attacked with rigid spasm, and consequently with obstinate costiveness: while in cholera both extremities are affected in a like way, and we have hence both purging and vomiting. It is to the same principle we are to ascribe it that when the surface of the body is suddenly chilled, as on plunging into a cold-bath, the sphincter of the bladder becomes irritated, and evacuates the contained urine: and, in treating of MARASMUS, we had occasion to show that while, in one of its species, the disease seems to commence in the digestive, and in another in the assimilating organs, constituting the extreme ends of a very long and complicated chain of action, it very generally happens that at which end soever the decay commences the opposite end is very soon affected equally.

Sympathy pervading a chain of nervous fibres; and evinced chiefly in their remote extremities. Illustrated.

In a continued chain of nervous fibres, however, this principle of sympathy which induces remote parts, and particularly remote extremities, to associate in the same morbid action, is peculiarly conspicuous. Hence, if a long muscle be lacerated in any part of its belly the tendinous terminations are often the chief seat of suffering. As the ulnar nerve sends off twiggs from the elbow to supply the fore-arm and fingers, a blow on the internal condyle of the humerus gives a tremulous sensation through the fore-arm and hand: and as the ulnar nerve itself is only an offset from a plexus or commissure of

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the cervical nerves which also give a large branch to the scapula, a paralysis of the ring or little finger has sometimes been removed by stimulating the scapular extremity by a caustic applied at the internal angle of the scapula. In inflammation of the liver, a severe pain is often felt at the top of the shoulder, and in palpitation of the heart, at the left orifice of the stomach. Both these are to be accounted for by recollecting that the radiations of the phrenic nerve extend in an upper line to the shoulder, and in a lower to the diaphragm, which constitute its extreme points; and that one of its branches passes over the apex of the heart. Now as the under surface of the diaphragm participates, from its contiguity, in an inflammation of the liver, the top of the shoulder suffers, as forming the extreme point of the phrenic chain by which these organs are connected; and as the upper surface of the diaphragm is in direct contact with the left and very sensible orifice of the stomach, an uneasiness at the apex of the heart becomes the cause of irritation to this orifice in consequence of its connexion with the diaphragm, and hence, of necessity, with the lower branch of the phrenic nerve at its extreme distribution.

This reasoning applied to trismus and diseases of a like kind.

These remarks apply with particular force to the disease before us, and many others of the same class with which it has a close analogy, as tetanus, lyssa, and hemicrania. And, although from the intricacy of the intersections and decussations with which various nerves pursue their radiating courses, it is impossible for us, in many instances, to determine why one line of connexion suffers while another remains unaffected, yet in most instances we may be able, by an accurate survey, to trace the catenation, and hence to obtain some insight into the physiology of these exquisitely curious, and complicated disorders.

Illustrated in trismus.

In mapping the nervous ramifications which give rise to trismus or locked-jaw, we must regard the ganglionic system, consisting of the various branches of the intercostal trunk, and the numerous branches which unite with it from the whole line of the spinal marrow, as constituting

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the centre; and as, from this centre, we perceive ramifications radiating in every direction to the face, the entire length of the back, the upper and lower limbs, and the thoracic and abdominal viscera, we see a foundation laid even by a continuous chain, for an association of remote parts and even extreme points in morbid changes, even though we may not be able, satisfactorily perhaps, in any instance, to trace out the individual line by which the diseased action is carried forward, and to separate it from other lines with which it is inextricably interwoven. Thus, in the case of trismus *nascentium*, forming the first variety under the present species, the irritation of the nerves of the stomach, which is very clearly the primary seat of disease in most cases, is propagated directly to the central branches of the ganglionic system, by the tributary offsets which the stomach receives from it. But we have already observed, that the chief contribution to this grand junction-canal is derived from the intercostal nerve itself, in the first instance an arm from the trigeminus or fifth pair of nerves, two branches of which radiate upwards, constitute the maxillaris superior and maxillaris inferior, and are lost in the muscles of the jaws: so that the upper extremity of the nervous line distributed over the stomach is the nerves of the jaws themselves. While various branches of the fifth occasionally unite with the portio dura, or respiratory trunk of the seventh pair, which divaricates not only to the diaphragm, but over all the muscles that have the remotest connexion with the respiratory system. And hence, agreeably to the law of the animal economy we have just pointed out, the muscles of the jaws, forming this extremity in the chain of morbid action, are the organs in which we may expect an irritation of the nerves of the stomach in various instances to manifest itself most strikingly.

Illustration applied to the first variety.

In like manner we may account for the second and third varieties of trismus, or that produced by a chilly dampness, or irritative violence applied to the upper or lower extremities: for as these are all supplied by nerves

Illustration applied to the second and third varieties.

GEN. I. SPEC. VI. Entasia Trismus. Locked-jaw.

from the vertebral source, which, as we have already remarked, gives off branches from every aperture in the spine to the ganglionic system, and as this system, at its upper end, terminates in the maxillary branches of the fifth pair of nerves, the muscles into which these nerves are distributed constitute one extreme point of a long chain of nervous action, while those of the upper and lower limbs constitute the other. And hence the same law which produces a spastic fixation of these muscles in certain irritations of the stomach, may reasonably be expected to operate with a like effect in certain irritations of the upper and lower limbs. And as the intercostal nerve, at its first rise from the common source of itself and the maxillary branches, receives also, in its progress, offsets from the sixth, seventh, eighth, and ninth pairs of cerebral nerves, as well as from all the vertebral, and as all these, in consequence of such an interunion and decussation, are sending forth branches over the muscles of the back, the chest, and the thorax, there is no difficulty in conceiving, when a rigid spasm has once commenced in the lower jaw, why it should be propagated through any of the muscles appertaining to these parts of the system, or even originate in them from any of the causes that excite locked-jaw, and hence lay a foundation for tetanus as well as trismus, both as a primary and a secondary disease. And I have touched upon this subject now that we may not have to repeat the present explanation when treating of tetanus in its proper place*.

Illustration equally applicable to tetanus.

In the simplest state of trismus, indeed, there is some degree of stiffness found at the back of the neck, and even in the sternum. The disease, in some cases, shows itself with sudden violence, but more usually advances gradually: till at length the muscles that pull up the jaw become so rigid, and set the teeth so closely together that they do not admit of the smallest opening.

* See Cloquet, Traité d'Anatomie Descriptive. Bork Beschreibung des fuensten Nervenpaares und seiner Verbindungen mit anderen Nerven, vorzueglict mit dem Ganglienysteme. Leips. 1817.

Gen. I. Spec. VI. α E. Trismus nascentium. Locked-jaw of infancy.

In tropical climates, for Dr. Cullen's remark that it is most common to the middle-aged only applies to the temperate regions of Europe, children are particularly subject to this complaint, and with a few peculiarities which, though producing no specific difference, are sufficient to establish a variety. The disease in this case is vulgarly known by the absurd name of FALLING OF THE JAW. It occurs chiefly between the ninth and fourteenth day from birth; seldom after the latter period. Without any febrile accession, and often without any perceptible cause whatever, the infant sinks into an unnatural weariness, and drowsiness, attended with frequent yawnings, and with a difficulty, at first slight, of moving the lower jaw; which last symptom takes place in some instances sooner, in others later. Even while the infant is yet able to open its mouth there is, occasionally, an inability to suck or swallow. By degrees the lower jaw becomes rigid, and totally resists the introduction of food. There is no painful sensation; but the skin assumes a yellow hue, the eyes appear dull, the spasms often extend over the body, and in two or three days the disease proves mortal.

Peculiarly common to tropical climates. Called vulgarly, but absurdly, Falling of the jaw. Description.

Ordinary cause.

The ordinary cause is irritation in the intestinal canal. Hence viscid and acrimonious meconium frequently produces it; as worms are said also to do, some months after birth. It seems, moreover, in some instances, to have followed from irritation in tying the navel-string, or its not being properly attended to afterwards: in which case, though the stomach may be affected by contiguous sympathy, the disease makes a near approach to the third or traumatic variety. Yet the appearance of the spastic action is as early as where the stomach is primarily affected.

Disease sometimes found in cold and mountainous countries.

In cold and even mountainous counties this variety is also sometimes found. "I am informed", says Dr. Cullen, "of its frequently occurring in the Highlands of Scotland; but I never met with any instance of it in the low country."* Whether, according to the conjecture of

* Loc. citat. § MCCLXXXI.

GEN. I. SPEC. VI. α E. Trismus nascentium. Locked-jaw of infancy.

this celebrated writer, it is more common to some districts than to others, has not been sufficiently determined. "It seems," says he, "to be more frequent in Switzerland than in France." Hot climates, however, constitute its principal domain; and hence it is not very surprising that Bajon should place one of its chief residences at Cayenne*; or that Akerman should assert it to be endemic in Guinea.

β E. Trismus catarrhalis. Catarrhal locked-jaw. Description.

In the SECOND VARIETY of the disease, or that proceeding from cold or night dew, the symptoms often appear within a day or two after exposure to the exciting cause. It is not common that the spasm extends to the muscles of the chest or back so as to produce tetanus, though there is often an uneasy sensation at the root of the tongue with some difficulty in swallowing liquids after their introduction into the mouth, the disease thus making an approach towards lyssa or canine madness in its symptoms, as we have just endeavoured to show that it does in its physiology. According to the observations of Baron Larrey, indeed, this approach is in many instances very considerable; for he informs us that on post-obituary examinations he has often found the pharynx and esophagus much contracted, and their internal membranes red, inflamed, and covered with a viscid reddish mucus. Dr. Hennen, however, does not place much dependence upon any such appearances; he admits, nevertheless, that they are to be traced occasionally, though he ascribes them more to an increased flow of blood consequent on increased action than to any other cause†.

In this variety, from the slighter nature of its attack, the patient not unfrequently recovers by skilful medical treatment, and there are unquestionably instances of spontaneous recovery‡, though cases of this kind are very rare. The intellect remains unaffected, there is little

* Bajon, Abhandlung. von Krankheit. auf der Insel Cayenne, &c. Erp. 1781.

† Principles of Military Surgery, 246.

‡ Briot, Hist. de la Chirurgie Militaire en France, &c. 8vo. Beganson, 1817.

quickness of the pulse, sometimes none whatever, and little or no disorder of any kind, though the bowels are usually very costive. If the patient pass the fourth or fifth day we may begin to have hopes of him; for the spasmodic constriction will then frequently remit, or intermit: but, as even in the last case, it is apt to return at uncertain intervals, there is still a considerable danger for many days longer.

Gen. I. Spec. VI. β E. Trismus catarrhalis. Catarrhal locked-jaw. Prognostics.

When, as in the THIRD VARIETY, the disease proceeds from a nerve irritated by a wound or sore of any kind, the spasmodic symptoms are much later in showing themselves; and sometimes do not make their appearance till eight or nine days afterwards, occasionally, indeed, not at all till the wound is healed. The disease is more dangerous in proportion to the delay; the adjoining muscles of the face become more affected, and, as is already observed, the spasms often shoot downward into the back or chest, and trismus is complicated with tetanus. The breathing is nasal and abrupt, the accents are interrupted and slow, and uttered by the same avenue; the muscles of the nose, lips, mouth, and the whole of the face are violently dragged and distorted, and the patient sinks from nervous exhaustion and want of nutriment, the jaw-bone being set so fast that it will often break rather than give way to mechanical force.

γ E. Trismus traumaticus. Traumatic locked-jaw. Symptoms appear later than in the preceding varieties: and are proportionally more dangerous. Description.

The disease, from this cause, is generally fatal: and we are indebted to the ingenuousness of Sir James M'Grigor and Dr. Hennen for a confession that, whatever remedies were employed in the British army, whether in India or in Spain, the mortality was nearly the same. But as the treatment of the present variety and the ensuing species should be founded on a like principle, we shall reserve this subject till we have entered upon a distinct history of the latter.

This variety generally fatal. Treatment the same as for tetanus, and reserved for the close of that subject.

SPECIES VII.

ENTASIA TETANUS.

Tetanus.

PERMANENT AND RIGID FIXATION OF MANY OR ALL THE VOLUNTARY MUSCLES; WITH INCURVATION OF THE BODY, AND DYSPNŒA.

GEN. I. SPEC. VII. Origin of the specific term.

TETANUS is derived from τιταίνω, which itself is a derivative from τείνω, "tendo, extendo". Like trismus it is a term common to the early Greek writers, among whom it was used synonymously with opisthotonus and emprosthotonus, though the two latter were afterwards employed to express two distinct modifications of the disease.

From peculiarities in the seat or mode of its attack this species offers us the four following varieties:

α Anticus. Tetanic procurvation.	Tetanus of the flexor-muscles. The body rigidly bent forwards.
β Dorsalis. Tetanic recurvation.	Tetanus of the extensor-muscles. The body rigidly bent backward.
γ Lateralis. Tetanic transcurvation.	Tetanus of the lateral muscles. The body rigidly bent laterally.
δ Erectus. Tetanic inflexibility of the body.	Tetanus of both the posterior and anterior muscles. The body rigidly erect.

Emprosthotonus what.

The FIRST of these VARIETIES is the emprosthotonus of early writers; the SECOND the opisthotonus; the THIRD the pleurosthotonus of authors of a later date; the FOURTH

the proper tetanus of Dr. Lionel Clarke and a few others. To these varieties it has been usual to add the singular disease called catochus; which by Sauvages, Cullen, and various other authorities is regarded as closely connected with this species. It has a near affinity to it unquestionably, and hence out of deference to concurrent opinions, it was suffered to stand as a variety of tetanus in the first edition of the author's Nosology, but with a note intimating that it seems rather to belong to the genus CARUS of the fourth order of the present class, and to be a modification of the species ECSTASIS, under that genus: and as this appears to be its proper place it will now be found arranged there accordingly.

Gen. I, Spec. VII. Entasia Tetanus. Tetanus.

Catochus how connected with these.

More properly a subdivision of carus.

The general physiology, so far as it seems capable of elucidation, has been already given under the preceding species; the proximate cause being that of a peculiar irritation of a certain chain or association of nerves, chiefly operating with the greatest violence at the two extremities of the morbid line. This irritation seems, in many instances, to consist in inflammation; and hence is made a common cause by many of the most valuable writers of the present day. Professor Frank seems first to have started the idea, and he has been followed in succession by Dr. Saunders of Edinburgh, Dr. Chisholm, Dr. James Thomson, and Dr. Abercrombie, who have been upheld in Italy by M.M. Brera, Rachetti, and Bergamaschi, and in France by M. Esquirol. Bergamaschi* advances indeed so far as to maintain that where wounds themselves, of whatever form, are the remote cause, a neurostenia, as he calls it, or inflammatory affection of the nerves, is still the proximate cause; extending itself from the wounded part, by the nervous extremities, to the spinal marrow and the brain, or, vice versâ, from the brain to the spinal marrow and principal nerves, and thence to the parts that are subservient to loco-motion. Dissection, however, is very far from giving proofs of such inflamma-

General physiology already glanced at.

Proximate cause.

Neurostenia of Bergamaschi.

* Osservazioni Medico-pratiche sul Tetano.—Giornale di Medicina pratica del Sig. Cons. e Prof. Cav. V. L. Brera.

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tory change in every instance: while in many cases the disease is of too fugitive a character, and makes its seizure or its disappearance too rapidly for the more measured progress of inflammation.

Exciting causes.

The exciting causes are also for the most part those of TRISMUS; though it appears in infancy far less frequently, unless as a concomitant of that disease. Damp and cold, therefore, and simple nervous irritation from wounds or sores in hot climates and crowded hospitals, are the chief sources of its production; and where these accessories exist, terror seems to be a powerful auxiliary, and has alone, in some instances, been sufficient for its production. "Passion, or terror," says Dr. Hennen, "after wounds and operations, has been known to produce the disease in some: and sympathy, though a rare cause, in others." It is said also to have been produced by insolation or exposure to the direct rays of the sun*, and has unquestionably followed, as M. Magendie, and numerous other French authors† have abundantly shown, from various irritant narcotics, as strychnine, or the extractive of nux vomica, as also from galvanism, when raised to a sufficient power for the purpose.

Terror sometimes a powerful auxiliary to them.

Lateral tetanus peculiarly uncommon.

LATERAL TETANUS is very rarely to be met with, and seems to be rather a chronic than an acute malady. Fernelius, who first described it‡, gives a case in which it occurred annually, but only in the winter, during which season the patient had two or three paroxysms daily, the head was first attacked with a peculiar vibratory feeling which gradually descended to the neck with a sensation of cold, and by the time it reached the scapula, was immediately succeeded by symptoms of opisthotonus, and afterwards of lateral contraction; during which the mind and external senses were unaffected, but the flexor-muscles were so firmly fixed that no antagonist force of the bystanders was able to overpower the contortion.

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* Pathol. Lib. v. p. 372.

† Desportes, Raffeneau, Fonquier, Dupuy.

‡ Medical Observations and Inquiries, Vol. VI.

GEN. I. SPEC. VII. Entasia Tetanus. Tetanus.

Nor are either of the other varieties, in any degree, so frequent as trismus, except where they form a subsequent part of the general chain of morbid action. My observant friend Dr. Hennen, confesses that during the whole period of his superintending the British hospitals in Spain he never met with but one case of emprosthotonus, and even this he describes as an incurvation that rather approached it than constituted the disease itself. "It was observed," says he, "at the same time and in the same hospital, with the various degrees of trismus: rigid spasms of almost every muscle of the body, and violent periodical convulsions, all from similar injuries to that in which it was produced."*

Description.

The other varieties also less frequent than trismus when strictly idiopathic.

From the complicated manner, indeed, in which tetanus shows itself, and its anomalous attack upon different sets of muscles at the same time, it seems in many instances to put all the subordinate divisions of classification at defiance. It is, in truth, for the most part a mixed disease, affecting various and opposite sets of muscles; and this in many cases so equally that the spastic action of the flexors just balancing that of the extensors, "the patient," to adopt the language of Dr. Lionel Clarke, "seems often to be braced between opposite contractions". It is to this form, indeed, that this last very intelligent writer has limited the name of tetanus as that to which it applies most emphatically. Like Dr. Hennen, he asserts that he had never seen a single case of genuine emprosthotonus; and that of the other two varieties of which he treats, the opisthotonus and proper tetanus, the former occurs most frequently.

Tetanus a peculiarly complicated affection of the muscles.

In episthotonus or TETANIC RECURVATION the symptoms sometimes show themselves suddenly, but more commonly advance slowly and imperceptibly: the patient mistaking the uneasy stiffness which he feels about the shoulders and cervical region for a crick in the neck, produced by cold and rheumatism. The stiffness, however,

Tetanic recurvation.

Description.

* Military Surgery, p. 247. 8vo. Edinb. 1820.

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increasing, he finds it impossible to turn his head on either side without turning his body: he cannot open his jaws without pain, and he has some difficulty in swallowing. A spastic and aching traction now suddenly darts at times towards the ensiform cartilage, and thence strikes through to the back, augmenting all the previous symptoms to such a degree that the patient is no longer able to support himself, and is compelled to take to his bed. The pathognomic symptom in this variety is the spasm under the sternum which is perpetually increasing in vehemence; and, instead of returning, as at first, once in two or three hours, returns now every ten or fifteen minutes. Immediately after which all the host of concomitant contractions renew their violence and with additional severity: the head is forcibly retracted, and the jaws snap with a fixation that rarely allows them to be afterwards opened wide enough to admit the little finger. This vehemence of paroxysm may not, perhaps, last longer than for a few minutes or even seconds: but the spastic action prevails so considerably, even through the intervals, that it is difficult for an attendant to bend the contorted limbs into any thing like an easy or reclined position. The breathing is quick and laborious, and the pulse, though calmer and less hurried, small and irregular. The face is sometimes pale, but oftener flushed, the tongue stiff and torpid but not much furred; the whole countenance evinces the most marked signs of deep distress, and swallowing is pertinaciously abstained from, as accompanied with great difficulty and often producing a sudden renewal of the paroxysms. The last stage of the disease is truly pitiable. The spasms return every minute and scarcely allow a moment's remission. The anterior muscles join in the spastic action, but the power of the posterior is still dominant; and hence while every organ is literally on the rack from the severity of the antagonism, the spine is more strongly recurvated than ever, and forms an arch over the bed, so that the patient rests only on the back part of the head and on the heels. During the exacerbation of the spasms, the lower extremi-

ties, even while they continue rigid, are so violently jerked, that the utmost attention is necessary to prevent the patient from being projected from his bed: and Desportes gives a case in which both the thigh bones were broken from the violent contraction of the flexor-muscles during a momentary remission of the extensors *; similar results to which we shall have occasion to notice hereafter.

Both thigh bones have been broken from the violent contraction of the flexor-muscles.

The tongue is in like manner darted spasmodically out of the mouth, and the teeth snapped suddenly and with great force; so that unless a spoon covered with soft rags, or some other intervening substance, is introduced between the teeth at such periods, the tongue must be miserably bitten and lacerated. The exertion is so laborious that the patient sweats as in a hot bath: and the heat has in some instances been raised to 110° Fahrenheit. The pulse is at this time small, and irregular: the heart throbs so violently that its palpitations may be seen; the eyes are sometimes watry and languid; but more commonly rigid and immoveable in their sockets: the nostrils are drawn upward, and the cheeks backward towards the ears, so that the whole countenance assumes the air of a cynic spasm or sardonic grin, while a limpid or bloody froth bubbles from the lips. There is sometimes delirium, but this is not common: the patient is worn out under this laborious agony in a few hours; though more usually a general convulsion comes to his relief, and he sinks suddenly under its assault.

In the ERECT TETANUS, in which there is a balance of spastic action between the anterior and posterior sets of muscles, the progress of the disease is not essentially different. The march of the spastic action, however, varies in some degree, as we have already observed, in almost every instance from trismus to tetanus, and from one modification of tetanus to another: yet the course we have now described is that which chiefly takes place where the disease advances in something of a regular and uninterrupted progress. Its danger and duration are com-

Erect tetanus. Description.

Spastic action considerably varies.

Prognostics.

* Hist. des Maladies de St. Domingue, II. p. 171.

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monly to be estimated from the degree of violence of the incursion. Where this is very severe the patient rarely survives the third day, and is sometimes cut off on the second, or even in six and thirty or four and twenty hours. But, where the attack is less acute, the patient may continue to suffer for a week before he reaches his tragic termination. If he have strength enough to survive the ninth day he commonly recovers, for the paroxysms diminish in violence, the intervals of remission are longer, and the muscles being generally more relaxed he is able to take a little nourishment. Through the whole period there is an obstinate costiveness, partly from want of food in the stomach, but chiefly from an association of the mouths of the intestinal excerments in the spasmodic constriction.

General principle of cure twofold: to take off local irritation, and tranquillize the general erethism of the system.

The general principle of cure is far more easily expressed than carried into execution. It is that of taking off the local irritation, wherever such exists, and of tranquillizing the nervous erethism of the entire system. The first of these two objects is of great importance in the locked-jaw or trismus of infants; for by removing the viscid and acrimonious meconium, or whatever other irritant is lodged in the stomach or bowels, we can sometimes effect a speedy cure without any other medicine. Castor oil is by far the best aperient on this occasion, and it may be given both by the mouth and in injections. But if this do not succeed we should have recourse to powerful anodynes; and of these the best by far is opium, which should be administered from three to five drops in a dose, according to the age of the patient. Musk and the host of antispasmodics have been tried so often with so little success that it is not worth while to put the smallest dependence upon them: nor has the warm or cold bath produced effects sufficiently general or decisive, to allow us to lose any time in trusting to their operation. They may be employed, however, as auxiliaries; but our sheet-anchor must be opium, which if the spastic action have made much advance when we first see the patient, should instantly be employed in conjunction with the prescribed

The first of great importance in the locked-jaw of infants.

Modes of accomplishing this object.

aperient. By taking off the constriction from the intestinal canal, and thus restoring and quickening the peristaltic motion, it may even expedite the dejections.

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In trismus or tetanus from wounds or sores, the local irritation is not so easily subdued: nor is its removal of so much importance, though in no case of small moment. But, generally speaking, the spastic action is, in these instances, as much dependent upon constitutional, as upon topical irritability, and when it has been once excited it will run through its career, whether the local cause continue or not. It is owing chiefly to this fact that the best and most active plan of cure so often fails of success; and the most cautious practitioners hesitate in their prognostications, whatever be the march of symptoms, for the first four or five days. "From the state of the pulse," says Dr. Hennen, "I have derived no clue to either the proper treatment or the probable event: it has, in the cases I have met with, been astonishingly unaffected. From the state of the skin I have been left equally in the dark. Sweating, which some have imagined critical, I have seen during the whole course of the disease, and attended with a most pungent and peculiar smell, while in others it has never appeared at all: and suppuration, which is generally interrupted, I have seen continue unaffected by the spasms. Even the process of healing, which, it would be reasonable to conclude, should be altogether put a stop to, has gone on apparently uninfluenced by the disease: and in the most severe case I ever saw, which occurred after a shoulder-joint amputation, sent into Elvas from before the lines of Badajos, the life of the patient and the perfect healing of the wound were terminated on the same day." So powerfully does the constitutional irritability operate in many cases after the the disease has once displayed its hideous features, and render the local treatment of subordinate importance.

Treatment of trismus or tetanus from wounds or sores.

Spastic action here as much dependent upon constitutional as topical irritability: and hence often continues after the latter has ceased.

Hence the great difficulty of prognostication.

In numerous instances, however, a change in the condition of the wound has produced a beneficial result; and hence various means have been resorted to for the purpose of effecting such a change, as local bleeding, anodyne

Local improvement, however, often highly favourable:

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and hence at all times an object of pursuit. How to be attempted.

applications to allay the morbid sensibility; resinous, terebinthinate, or mercurial stimulants to excite a new action; and amputation of the diseased limb. The first of these three plans is the ordinary mode of practice, and in full plethoric habits it has sometimes proved favourable; the second plan seems to have been very generally employed by Baron Larrey, who occasionally used stimulants of a far higher power, as pencilling the wound with lunar caustic, or an application of the actual cautery. It is upon this principle of counter-irritation that advantage has sometimes been derived from needle-puncturing, of which the periodical journals have lately furnished us with various examples*: and, by the French pathologists, from an employment of strychnine or the active alkaline part of nux vomica, where the disease has not been primarily induced by this irritant†. Amputation seems to have answered in a few cases, if we may give full credit to those who have chiefly tried and recommended it‡; but it is at best a clumsy and desperate kind of remedy; and, for reasons already assigned, must be often altogether inefficient if it do not add to the constitutional erethism.

Needle-puncturing.

Strychnine.

Amputation a clumsy and desperate remedy even when successful.

Constitutional treatment.

The general treatment has consisted in a free use of opium; salivation; the hot or cold bath; and wine or ardent spirits, in some instances so far as to produce intoxication. Dr. Cross gives a case in which, after other medicines had been used in vain, and every hope seemed to fail, the patient was inebriated with spirits, and kept in this state for ten days, with the result of a perfect recovery§. A generous use of wine appears to be almost indispensable, and, considering the ordinary constitution in which the disease occurs, the difficulty of supporting the system by common means, and the great sensorial exhaustion which is perpetually taking place, it is far from difficult to explain in what manner it operates beneficially:

Disease has been cured by intoxication.

An exciting state of regimen almost indispensable:

* London Med. Repos. Vol XX. p. 403. Case furnished by Mr. Finch.

† M. Coze. Remarques sur la Nux Vomique, &c.

‡ Silvester, Med. Obs. and Inquir. I. Art. I. White, Med. Obs. and Inq. II. Art. XXXIV.

§ Thomson's Annals of Philosophy.

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but intoxication is a frantic experiment, and, where it succeeds once, we have reason to apprehend it would kill in a hundred instances.

but intoxication a desperate experiment.

The warm and the cold bath have each of them a much better claim to attention; and their votaries are so equally divided that it is no easy matter to say which is most strongly recommended. The latter demands more general strength in the system than the former: but neither of them are to be depended upon except as an auxiliary. The cold bath has the authority of Dr. Lind in its favour*, and has in some instances been tried with success in America †.

Warm and cold bathing.

Mercury, in various forms, has been had recourse to from a very early period: and, on the authority of Dr. Stoll, has occasionally been used for the purpose of exciting salivation. On what ground it has been carried to this extent I do not know, except it be that a pretty free flow of saliva from the mouth spontaneously has, by many persons, been regarded as a favourable sign. The disease, however, does not seem to be accompanied with any symptom that can be called critical; and it is hence probable that this spontaneous flow of saliva is nothing more than a result of the violent action and alternating relaxation of all the parts about the fauces. Nevertheless, salivation where it has been accomplished, is said by many writers to have been serviceable, though I know of no practitioner who has relied on it alone. And, in reality, such is the rapidity with which both trismus and tetanus usually march forward where they have once taken a hold on the system, that we have seldom time to avail ourselves of this mode of cure, were its pretensions still more decisive than they seem to be. It is most successfully employed after copious venesection, and in conjunction with opium.

Mercury employed so as to excite salivation.

Opium, indeed, in every stage and every variety of both tetanus and locked-jaw, is the remedy on which we are to place our chief if not our only dependence. But to give

Opium chiefly to be depended upon in every stage and modification:

* Essay on Diseases in Hot Climates, p. 257.

† Tallman. Amer. Phil. Trans. L. XXI. Cochran, Edin. Med. Com. Vol. III. p. 183.

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to be given in very free doses.

Exemplified.

it a full chance of success it should be administered in very free doses, and it is not easy for us to be too free in its use. In the Edinburgh Medical Commentaries* we have a case in which five hundred grains were taken within seventeen days, which is about thirty grains a-day: and in the Edinburgh Journal†, another case, in which, after smaller doses along with calomel, the practitioner at last gave a drachm of solid opium at one time. This, however, proved too high a dose; for the induced stupor was accompanied with very laborious respiration, and nearly an extinction of the pulse, and the patient was obliged to be roused by stimulants. He recovered ultimately. Yet in the West Indies opium is often carried with the most beneficial effects to as great an extent as this, though not at once. Thus Dr. Gloster of St. John's, Antigua, gave to a negro, labouring under tetanus from an exposure to the night air, not less than twenty grains every three hours, in conjunction with musk, cinnabar, and other medicines: and continued it with but little abatement for a term of seventeen days, in the course of which the patient took five hundred grains of this narcotic. For the first six days little benefit seemed to be effected, but after this period the symptoms gradually declined under the same perseverance in the medicine; and in thirteen days more they were so much diminished that no further assistance was thought necessary.

Opium in union with sudorifics: especially ipecacuan: as given by Latham.

If there be any thing which adds to the sedative power of opium in this disease it is sudorifics, and particularly ipecacuan. And upon this subject Dr. Latham has given a valuable paper in the Medical Transactions, in which he offers examples of failure in the use of James's powder, when used either alone or in alternation with opium; but of full success by uniting the two powers of the narcotic and the sudorific, though he afterwards preferred ipecacuan to James's powder, and prescribed it in the form of the compound powder of this name. He gives cases in

* Vol. I. p. 88.

† Edin. Med. and Surg. Journ. No. LXXI. Mr. Barr's case.

which he employed this compound in very severe attacks, and sometimes in what seemed to be its last stage of the disease, with an immediate arrest of its symptoms, and progressively a perfect restoration to health. His doses consisted of ten grains repeated every three or four hours. In no instance was there any unusual inclination to sleep, how long soever this treatment was continued, which in one case was for a fortnight: nor was there any degree of sickness, nor any other inconvenience, except that of a perspiration troublesome from its excess*.

Proper ventilation of essential importance.

It is only necessary to observe further that during the treatment either of trismus or tetanus, a very particular attention should be paid to ventilate the chamber with pure air: and especially to purify the air of close and crowded hospitals, without which no plan of treatment in the world can be of any avail.

The bowels to be relieved of costiveness by gentle aperients:

We should also remove, if possible, the costiveness to which the bowels are so peculiarly subject, by some gentle aperient: for it sometimes happens, not only in infantile trismus or tetanus, but in that from obstructed perspiration, or cold and dampness, that the primary cause of irritation is seated in the bowels: while, whatever accumulation takes place in this quarter, during the course of the disease, may add to and exacerbate the general erethism.

but drastic purges highly mischievous.

At the same time nothing can be more mischievous than the drastic purges which practitioners are apt to give at the commencement of this disease, consisting of jalap, scammony, and aloes.

Explained.

We have have already seen that the general excitement is so extreme that the slightest occasional irritation, even that of changing the position of the head, is sometimes sufficient to produce a return of the spasms: and hence there can be nothing more likely to do it than the griping effects of such acrimonious medicines. And it will be far safer to pass by the constipation altogether, than to attempt to remove it by such dangerous means. The best medicine is castor oil, which may be given either by the mouth or in the form of injections: and if this do not

* Med. Transact. Vol. IV. Art. IV.

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succeed, we may employ calomel. But the action of the bowels must only be solicited, and by no means violently excited.

SPECIES VIII.

ENTASIA LYSSA.

Rabies.

SPASMODIC CONSTRICTION OF THE MUSCLES OF THE CHEST; SUPERVENING TO THE BITE OF A RABID ANIMAL; USUALLY PRECEDED BY A RETURN OF PAIN AND INFLAMMATION IN THE BITTEN PART: GREAT RESTLESSNESS, HORROR, AND HURRY OF MIND.

Gen. I. Spec. VIII. Antiquity of the specific name and of the disease itself. Noticed repeatedly in the Iliad.

THE Greek term for rabies was LYSSA: and the antiquity of the disease is sufficiently established from its being referred to several times under this name by Homer in his Iliad, who is perpetually making his Grecian heroes compare Hector to a mad-dog κύνα λυσσητῆρα, which is the term used by Teucer; while Ulysses, speaking of him to Achilles, says,

—— κρατερὴ δὲ ἑ ΛΥΣΣΑ δέδυκεν.*
So with a furious LYSSA was he stung.

Lyssa preferable to hydrophobia, its common synonym, and why.

The author has ventured to restore the Greek term, not only as being more classical, but as being far more correct than the technical term of the present day, which is *hydrophobia*, or *water-dread;* since this is by no means a pathognomic symptom; being sometimes found in other diseases; occasionally ceasing in the present towards the close of the career; and, though almost always observable among mankind, in numerous instances wanting, even from the commencement, in rabid dogs, wolves, and other

Hydrophobia not a constant symptom: being frequently absent in quadrupeds:

* Iliad, IX. 237.

animals. "Constat repetitâ," says Sauvages, "apud Gallo-provinciales experientiâ, canes luposque rabidos bibisse, manducasse, flumen transasse, ut olim Marologii, et bis Forolivii observatum, adeoque nec cibum nec potum aversari." The same fact is affirmed of rabid wolves in a case given by Trecourt in his Chirurgical Memoirs and Observations. Dr. James in like manner relates the case of a mad-dog that both drank milk and swam through a piece of water*; and one or two similar cases are said to have occurred among mankind†; though even here a spasmodic constriction of the muscles of the chest, and sometimes of the throat, seems to have been present. Dr. Vaughan, indeed, gives the case of a patient who called for drink through the whole course of the disease, and only ceased to ask for it a short time before his death.

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and said to be sometimes absent in mankind.

I have occasionally met, on the contrary, with a few obstinate cases of hydrophobia, or water-dread, without any connexion with rabies: one especially in a young lady of nineteen years of age, of a highly nervous temperament, which was preceded by a very severe toothache and catarrh. The muscles of the throat had no constriction, except on the approach of liquids, and the patient through the whole of the disease, which lasted a week, was able to swallow solids without difficulty; but the moment any kind of liquid was brought to her a strong spastic action took place, and all the muscles about the throat were violently convulsed if she attempted to swallow.

Hydrophobia sometimes found without rabies. Exemplified.

Similar examples are to be found in Battini, Dumas, Alibert, and several of the medical records, and particularly one of great obstinacy in the Edinburgh Medical Essays, which was chiefly relieved by repeated venesections‡, as the preceding case was by large doses of opium.

* On Canine Madness, p. 10.

† Fehr. Nachricht von einer tödtlichen Krankheit nach dem tollen Hundsbisse. Gött. 1790, 8vo.

‡ Inflammation of the Stomach with Hydrophobia, &c. by Dr. J. Ianes. Ed. Med. Ess. I. p. 227.

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Hydrophobia is therefore too general and indefinite a term to characterize the genus before us, unless we mean to include under it diseases to which it is by no means commonly applied, and which, in truth, have little connexion with rabies. Hunauld has, indeed, employed it in this extensive signification, and has hence made it embrace no less than seven distinct species, of which two only are irremediable*; and Swediaur has followed his example†.

Pathology difficult and evaded by most writers, and especially Cullen.

There is, even in the present day, so little satisfactorily known, and so few opportunities of acquiring any practical knowledge concerning the general nature and pathology of rabies, that it might, perhaps, be most prudent to imitate the modesty which Dr. Cullen has set us upon this subject, and to let it pass without a single remark.

An outline attempted by the present author.

Yet the following hints, derived from the only three cases in which the author has ever been consulted, compared with the larger range of observation and practice of a few other physicians, and especially the valuable work of professor Trolliet of Lyons, together with the reflexions to which they have given rise in his own mind, may afford a little glimmering light into the principle of the disease, and give an opportunity to succeeding pathologists of describing it more perspicuously.

Close analogy of lyssa with trismus and tetanus in its mischief,

The symptoms enumerated in the definition, and especially the constrictive spasm that oppresses the muscles of deglutition and of the chest generally, sufficiently show that the present species of disease bears a very close analogy to the two preceding, in the mischief which it excites; and, as by far the most frequent cause of the two preceding species is the irritation of a wound or puncture on the surface of the body, it bears quite as close an analogy to them in the nature of its cause as in that of its effects.

and in the nature of its cause.

Law by which the extremities of a continuous chain of functions

We have seen it to be a law operating throughout the animal system, that if a morbid action commence in any

* Discours sur la Rage, et ses Remedes. Chateaus Gontier, 1714, 12mo.
† Nov. Nosol. Meth. Syst. vol. i. p. 511.

part whatever of a continuous chain of functions, or of fibres, it often produces a peculiar impression upon its extremities; so that the extremities themselves form in many instances, the chief seat of distress and even of danger: and this more especially where the one extremity of the chain becomes affected in consequence of the primary affection of the other. And we have also endeavoured to show, from the general course and intermediate connexions of the nerves which supply the surface of the body, and particularly the extremities, that they constitute a direct fibrous chain, of which those that are, in all common cases, primarily irritated by wounds or punctures in the spastic diseases before us, form the one extremity, and those which enter into the muscles of the upper regions of the chest and the cheeks the other*. It is not necessary, therefore, to travel over the same ground again; the reader may turn to it at his leisure: and he will find that we have hence endeavoured to trace out something of the means by which trismus and tetanus are produced by simple wounds or punctures in the limbs, and especially in an irritable habit.

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or fibres suffer equally at their extremities, often laid down, and here again appealed to.

This law appealed to in illustration of trismus and tetanus,

Now if the reasoning be sound, as applied to trismus and tetanus, it must be equally good as applied to lyssa; and will induce us to expect a more complicated disease and a still more severe and desperate result; as we have, in the present instance, not merely an ordinary and mechanical, but a specific and chemical source of irritation to encounter, and so indecomposible in its nature that it is capable of lurking in the system, and apparently in the part where it may chance to be deposited, for weeks or even months without losing its activity: of continuing dormant, if there be no sufficient irritability of constitution or nervous fibre for it to operate upon, and of operating as soon as such a condition may arrive: for that some exciting cause is usually necessary to rouse it into action, will sufficiently appear in the sequel of this inquiry. Sir Lucas Pepys, however, Dr. Bardsley, and

and equally applicable to lyssa, which, for various reasons, may be supposed capable of producing a more fatal disease.

* See the preceding Species ad init.

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Whether the disease be ever spontaneous. Denied by many.

Girard of Lyons.

various other writers have made it a question whether the virus of rabies is ever originated, or produced spontaneously, or in any other way maintained than by a direct communication from one animal to another; while M. Girard, of Lyons, has denied that there is any such thing at all, and contended that rabies consists in nothing more than an acute degree of local irritation, and its effects on a highly mobile and excitable constitution. We have long, however, had various examples on record, and have recently been furnished with another by Mr. Gillman, in which a dog chained up in a yard, and cut off from all medium of contamination by other animals, has occasionally been attacked with genuine lyssa, and exhibited its most decisive characters. Professor Trolliet, whose extensive experience I shall soon have occasion to advert to more minutely, while he has no doubt of its occasional spontaneous origin, limits its appearance in this form to the dog, the wolf, the fox, and the cat, believing that all other animals only receive it from the one or the other of these by inoculation*.

Proofs of a spontaneous origin.

This principle limited by Trolliet.

Yet in most animals a wound inflicted during rage, much more irritable than during tranquillity; as though some peculiar acrimony were secreted.

Exemplified in other animals.

Nevertheless, whilst we are thus establishing that the symptoms of rabies are dependent upon a specific virus, it may not be foreign to remark that most animals, when roused to a high degree of rage, inflict a wound of a much more irritable kind than when in a state of tranquillity: and we have numerous examples in which such wound has been very difficult of cure, and not a few in which it has proved fatal; as though at all times, under such a state of excitement, some peculiar acrimony was secreted with the saliva. In the Ephemera of Natural Curiosities, is an example of symptoms of hydrophobia or water-dread, produced by the bite of a man worked up into fury†; and in the Leipsic Acta Eruditorum is another instance of the same kind‡, though neither of them seem to have been fatal. Meekren§, however, Wolff‖,

* Noveau Traité de la Rage, Observations Cliniques, Recherches d'Anatomie Pathologique, et Doctrine de cette Maladie. 8vo. Lyon. 1820.

† Ann. IX. X. App. p. 249.

‡ Ann. 1702. p. 147.

§ Observ. Cap. LXVII.

‖ Observ. Med. Chir. Lib. II. N. 5.

and Zacutus Lusitanus* have each an instance of such a bite terminating in death, yet without hydrophobia. Le Cat gives a case of death produced by the bite of an enraged duck†; and in a German miscellany of deserved repute we have another of the same kind‡. The instances, indeed, are innumerable; but it may be sufficient to observe further that Thiermayer gives us two cases, one in which the bite of a hen, and another in which that of a goose proved fatal on or about the third day§, without hydrophobia: and that Camerarius has an instance of epilepsy produced by the bite of a horse‖.

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In which it proved fatal but without hydrophobia.

These statements to be accredited rather than impugned.

Marvellous as these facts may appear, it is more consistent with reason to accredit them than to impugn the host of authorities to whose testimony they appeal. And it hence seems to follow that the passion of rage, whose influence is always considerable on the trachea and salivary glands, has often a power of stimulating the one or other of them, among most animals, to the secretion of an acrimonious and malignant virus with which the saliva becomes tainted.

Hence rage has a peculiar influence on the salivary glands, and excites the secretion of an acrimonious virus.

But the virus of rabies is peculiar to itself.

Rabies, however, has sufficiently shown itself to be dependent upon a peculiar virus, and capable of producing specific effects; to be sometimes originated, and sometimes received by communication. Now the only animals which have hitherto been ascertained to have a power of originating it are, as just observed, several species of the genus canis, as the dog, fox, and wolf, and one species of the genus felis, which is the domestic cat; it is probable, however, there are others belonging to different classes endowed with a like power; and some writers have attempted to bring instances from the horse, mule, ass, ox, and hog, yet they are not instances to be depended upon. In like manner, Plater, Doppert, and even Sauvages himself, have asserted the same of mankind, and have brought forward a few casual cases in support of such assertion.

The only animals known to originate it are of the canine and feline kinds, though probably the power belongs to others.

Man asserted to have a like power: but the cases alluded to are those of strongly excited passions in an irritable habit.

* Prax. Admir. Lib. III. Obs. 84. 88.
† Recueil Periodique, II. p. 90.
‡ Samml. Med. Wahrnehm. B. II. p. 98.
§ In Goekelii Consil. et Obs. N. 19.
‖ Diss. de Epileps. freq. p. 15.

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These, however, are, in every instance, modifications of empathema, and especially of rage or fright, grafted on a highly irritable temperament, and hence associated with hysterical, or some other spasmodic motions.

Remote or predisposing causes unknown. Various incidents suspected, but without sufficient authority.

Of the remote or predisposing causes of this disease we know nothing. The excitement of vehement rage, putrid food, long continued thirst from a want of water to quench it, severe and pinching hunger, a hot and sultry state, or some other intemperament of the atmosphere, have been, in turn, appealed to as probable predisponents, but the appeal in no instance rests on any authority.

Illustrated.

That the stimulus of vehement rage will often produce a peculiar influence affecting the saliva, and rendering it capable, by a bite, of exciting the most alarming symptoms of nervous irritation we have just shown; but these symptoms are not those of lyssa; and the virus, whatever it consists in, appears to be of a different kind. Putridity is, perhaps, the ordinary state in which dogs and cats obtain the offal, on which, for the most part, they feed: they show no disgust to it, and it offers a cause far too general for the purpose. In long voyages, again, when a crew has been without water, and reduced to short provisions, dogs have been, in innumerable instances, known to die both of thirst and hunger without betraying any signs of genuine rabies. That a peculiar intemperament of the atmosphere may at times be a cause, it is impossible to deny; but the disease, even when of spontaneous origin, has appeared under, perhaps, every variety of meteorological change, and seems to be far less common in hot and tropical regions than in those of a more moderate temperature: for it is not known, except by report, in South America, though it is said to have occasionally appeared in the West Indies, as I have been repeatedly informed by intelligent residents in those quarters; while M. Volney tells us that it is equally uncommon in Egypt and Syria, and Mr. Barrow, at the Cape of Good Hope and in the interior of the country, where the Caffrés feed their dogs on nothing but putrid meat, and this often in the highest degree of offensiveness.

Rabies less common in torrid than in temperate climates.

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It is not improbable that several of these may occasionally become exciting causes; but it is hence obvious that they are not competent of themselves to produce the disease. Some of them indeed have been put to a direct test, and have explicitly proved their incompetency. Thus in the wards of the Veterinary School at Alfort, three dogs were shut up and made the subjects of express experiments. One was fed with salted meats, and totally restrained from drinking: the second was allowed nothing but water; and the third allowed neither food nor drink of any kind. The first died on the forty-first day of the experiment, the second on the thirty-third day; and the third on the twenty-fifth; not one of them evincing the slightest symptom of rabies.

Several of the above may however be exciting causes, but of themselves incompetent to produce the disease.

Proofs of this assertion.

That the specific virus of rabies is less volatile and active than many other kinds of morbid poisons is clear from the fact that it is never found diffused in the atmosphere, so as to produce an epidemy; that it never operates on those who are most susceptible of its influence except when accompanied with a wound or inserted into the cutis*; and that, even in this case, it usually requires in mankind, and probably also in other animals, some auxiliary excitement to enable it to carry forward the process of assimilation: for it rarely happens that all the men or quadrupeds that are bitten by a rabid dog suffer from the inoculation. Mr. Hunter, indeed, gives an instance in which out of twenty persons who were bitten by the same dog only one received the disease. This want of activity is a happy circumstance, as it affords an important interval for medical treatment, if we should ever be so fortunate as to hit upon any curative process that may be depended upon. At the same time I cannot avoid again to observe that as this virus is less volatile than most others, it is perhaps less indecomposible than any of them, and hence is capable of remaining in a dormant and unaffected state, in any part of the system, into which it has been received by insertion, for a far longer period than any

The specific virus of rabies less active and volatile than many morbid poisons,

hence all that are bitten rarely suffer.

Sometimes not more than one out of twenty:

and hence also the long interval that usually takes place between the injury and the disease.

Virus also more indecomposible than any other:

and hence capable of lying dormant for a longer period than any.

* Tuffiet, ubi supra.

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other known contagion whatever. It is generally calculated, but I do not know upon what data, that of those who are exposed to the venom about one in four matures the complaint, and the rest escape.

Whether the acrimony becomes concentrated and active by multiplication?

No solid foundation for such an opinion.

When the disease has once fixed itself among a large establishment of hounds, it has been said that the acrimony of the poison becomes more concentrated and active; operates through an unbroken skin, and even taints the atmosphere. There is, however, no solid foundation for such an opinion; and though the disease runs rapidly from one dog to another, and it may be difficult in many cases to trace the marks of a bite, yet considering that the smallest and most imperceptible scratch of a tooth may be a sufficient medium of infection, and that every inoculated dog adds to the sources from which it may be derived, there is no difficulty in accounting for such rapidity of spread without ascribing anomalies to the laws by which it is regulated.

Whether capable of being received without a wound or sore?

asserted by Heister,

Heister, indeed, has given a case of lyssa, in one of the foreign collections, produced in a man by his having merely put into his mouth the cord by which the mad dog had been confined: but as in this instance there was probably some ulceration in the mouth at the time, there is nothing marvellous in its production.

and by Palmarius.

Palmarius, in like manner, relates the case of a peasant who, in the last stage of the disease, communicated it to his children in kissing them and taking leave of them*.

The effects in these cases accounted for upon the common law of the disease.

Yet unless we could be certain that there were no cracks or other sores on the lips, and no eruption on the cheeks of these children, the example affords no proof.

Proofs offered.

I can distinctly state that I have seen the same intercommunication successively repeated between a rabid young man and a young woman to whom he was betrothed, and who could not be restrained from such a token of affection, without any evil consequences; notwithstanding that the patient was labouring at that time under hydrophobia and all the severest marks of the disease which destroyed him in a few hours afterwards,

* De Morb. Contagios. p. 266. Paris, 4to. 1518.

and had also a perpetual desire to spit his saliva about the room. M. Trolliet asserts not only that the virus will not permeate a sound skin, but that it is only contained in the frothy matter communicated from the lips; and that neither the blood, nor the secretions of any kind are tainted with it, or give rise to the disease, whatever scratch or other injury may be received during dissection.

Has been sometimes denied that the virus can be propagated in any way from the human subject.

It has, still farther, been doubted whether the virus itself is capable of propagation from the human subject to any animal even by inoculation: but a bold experiment of M. Magendie and M. Breschet has completely settled this question; for on June 19, 1813, having collected upon a piece of linen a portion of the saliva of a rabid man in the last stage of the disease, they inserted it under the skin of two dogs that were in waiting, both of them in good health; of which one became rabid on the 27th of July, and bit two others, one of which also fell a victim to the disease just a month afterwards.

Contradicted by experiments of Magendie and Breschet.

Nervous system the immediate quarter of disturbance:

The general aggregate of the symptoms point forcibly to the nervous system as the immediate quarter of disturbance. Such was the opinion of Morgagni, Cullen, Percival, and Marcet; and such indeed is the common opinion of the present day. By many writers, however, the effects have been rather referred to the sanguiferous system and regarded as a fever; Mangor describes it as a continued fever *; and Rush and many others as an inflammatory affection; Bader as a fever *sui generis* †. Nor is the difficulty in the least degree removed by dissection, for nothing can be more at variance than the appearances in different cases. Generally speaking the fauces and parts adjoining exhibit redness and inflammatory characters. But while in some instances these are so considerable as to be on the point of gangrene, in others there is no inflammatory appearance whatever. Morgagni has examined and described bodies in both these

but the effects referred by some writers to the sanguiferous system and regarded as a fever or an inflammation.

Question examined, and inflammatory appearances accounted for.

* Act. Havn. II.

† Versuch einer neuen Theorie, &c.

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states. Rolfinc gives one or two decided cases of the latter sort *: while Feriar notices examples in which the inflammation of the fauces had spread over the whole esophagus and even the stomach †; and another writer has recorded an instance in which it had descended to the ileus, which was in a state of gangrene ‡. In some cases the encephalon, and even the spinal marrow, has appeared to be as much diseased as the fauces; the vessels turgid; the plexus choroides blackish; the ventricles loaded with water: though in the cases examined by M. Magendie, which were confined to dogs, there was no appearance of inflammation either in the brain or spine. Sometimes the lungs have been inflamed, sometimes the liver, sometimes the vagina; while the blood, according to Sauvages, has been also found in a dissolved state, and, according to Morgagni, in a state highly tenacious and coagulable. From all which we can only conclude that owing to the violence of the disease, every organ is greatly disturbed, and those the most so that in particular cases are most severely affected. Riedel asserts that among dogs a highly offensive fetor of a peculiar character is thrown forth from every part of the body §: but I have not found this remark confirmed by the veterinary practitioners of our own country; and it certainly does not apply to mankind, with an exception or two that seem to depend upon some accidental circumstances; for Wolf informs us, that in one of his patients, and a patient that ultimately recovered, the blood stunk intolerably as it was drawn from a vein; and a patient of Dr. Vaughan's complained of a most offensive smell that issued from the original wound, but of which no one was sensible except himself. In like manner the patient described by Dr. Marcet, towards the close of the disease, complained loudly of an intolerable stench that issued from his body generally, but without being

Sometimes no such appearances.

Whether accompanied with an offensive fetor.

Seems to have been so in a few cases from some casualty, but not a general concomitant.

* Dissert. Anat. Lib. I. cap. xii.
† Medic. Facts and Observations, Vol. I.
‡ N. Act. Nat. Cur. Vol. IV. Obs. 20.
§ Act. Acad. Mogunt. Erf. 1757.

perceived by any other person *. Dissection in this case produced nothing striking.

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Dessault, in his treatise on rabies, tells us that he has often met with numerous minute worms in the heads of those who have died of this disease; and he hence regards such animalcules as its cause. But this writer was a slave to the Linnéan hypothesis of invermination, and applied the same cause to syphilis, which he also supposed to be maintained by a transfer of vermicules from one individual to another: and hence proposed to treat syphilis, lyssa, and itch, as diseases of a like origin, with the common antidote of mercury; and gives instances of a success which no one has met with out of his own practice. The cases, however, which he describes had not advanced to the stage of water-dread; and in all of them he thought it prudent to combine with his mercurial inunction cold bathing, and Palmarius's antilyssic powder.

Hypothesis of Dessault, who derives the disease from animalcules.

Vander Brock and, after him, Rahn maintain that the return of pain and inflammation to the bitten part, on the onset of the disease, does not occur from any virus which has hitherto been lying dormant there, but from the universal excitement alone. It may be observed, however, in opposition to such an opinion, that this local affection is in most instances a prelude to the general disease, and forms the punctum saliens from which it issues; as though the contagious ferment had remained dormant there, and was at length called into action by some exciting cause.

Whether the local irritation proceed from a dormant seminium, or from universal excitement.

Not from the last, as it commonly precedes it and gives rise to it.

There seems, nevertheless, to be a slight departure from the general character of the disease in a few cases, and particularly in those that are produced by the bite of a rabid cat, whether the latter have originated it, or received it from a rabid dog, as though by a passage through the domestic cat the virus undergoes a similar change to that which takes place in the virus of small-pox, when passing through the system of an individual which has previously submitted to the influence of cow-pox: for, upon the whole, the disease appears to evince some-

Variation in feline rabies from canine,

by which the disease seems to be rendered somewhat less malignant.

* Medico-Chir. Trans. I. 132.

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what less malignity, to be more disposed to intermit, and its spastic symptoms, and especially that of water-dread, to be both less frequent and less violent: so that in respect to symptoms we may perhaps mark out the two following varieties:

Hence two distinct forms.

α Felina. Feline Rabies.	The spastic symptoms less acute and frequently intermitting; produced by the bite of a rabid cat.
β Canina. Canine Rabies.	The spastic constriction, for the most part, extending to the muscles of deglutition, which are violently convulsed at the appearance or idea of liquids: produced by the bite of a rabid dog, wolf, or fox.

α E. Lyssa felina. Feline Rabies. Example from Morgagni.

There is a case of FELINE RABIES, if it be rabies, in Morgagni, and which is copied from him into Sauvages' Nosology, in which the above distinction is so strongly marked, that the author, in the first edition of his own Nosology, was induced to follow M. de Sauvages' mode of classifying it, and made it, after him, a distinct species, though he deviated from the name under which it occurs in this justly celebrated writer, which is that of Anxietas à Morsu*. The history of the enraged cat is not given, nor is it certain that the rage was that of rabies. The master of the animal was attacked and wounded both by its teeth and claws. The symptoms took place four days after the bite, and were confined to spasms of the chest without hydrophobia; nor do these seem to have been of great violence, for they are described as "magna præcordiorum anxietas". Local and general bleedings were useless: a frequent repetition of the warm bath afforded relief; but it only yielded to an ephemera with copious sweat. The intervals were lunar: for it returned with the full moon for two years: the bitten part, as usual, first becoming highly irritable, and the spasms or vehement

In this case no hydrophobia,

and, on convalescence, periodical returns, commencing in the bitten part, and continuing for two years.

* Classis VII. Ord. I. v. 6.

anxiety of the præcordia supervening, which were now relieved by bleeding. After this period it returned with every fourth full moon for two years more, and then appears to have ceased.

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A few instances of periodical returns have occurred among dogs.

A few instances of intermission, with a return of periodical paroxysms, produced by the bite of a rabid dog, are also to be found in the medical collections: of which Dr. Peter's case, recorded in the Philosophical Transactions* affords a striking example, the paroxysm returning for many months afterwards, severely once a fortnight, or at every new and full moon, and slightly at the quarters, or in the intervening weeks. Selle, indeed, asserts that he has met with an instance of the same kind of intermission among dogs; and hence where the individual recovers, both varieties seem occasionally to subside in this manner.

Singular instance recorded by Peters:

And hence both varieties seem sometimes to terminate in this manner.

Fothergill's two examples of affection from feline rabies.

Dr. Fothergill has given two cases of unquestionable affection from feline rabies produced by the same animal. The cat first bit the maid-servant, and afterwards the master of the house, about the middle of February. The wound inflicted on the maid-servant remained open and irritable from the first, and continued to resist every application for many months; it healed however, at length, and no constitutional symptoms supervened. The wound inflicted on the master healed easily and in a short time, but in the middle of the ensuing June, being four months afterwards, the usual symptoms of lyssa appeared, yet with comparatively slight and occasional water-dread: insomuch that the patient, far from resisting the use of the warm-bath, sometimes called for it, expressed a high sense of the comfort it afforded him, and was able at times to dash the water over his head with his own hands. It terminated, however, fatally, and with the general symptoms of distress which we shall give presently†.

In the one the wound difficult to heal, but no constitutional symptoms.

In the other the wound healed easily, but death ensued.

In the Transactions of the Medical Society of London‡, we have a highly interesting case of the same kind,

Further illustrated from a marked case in the Philosophical Transactions.

* Phil. Trans. 1745. No. 475.

† Neue Beträge zur Natur und Arzney-wissenschaft. B. III. 118.

‡ Med. Observ. and Inquir. Vol. v.

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which proved equally fatal, in seventy-four days from the time of receiving the injury, and fifty-eight hours from the commencement of the disease; all the symptoms moreover exhibiting less violence than usually occurs in canine madness, with little or no water-dread, and consequently an ability to drink fluids to the close of the disease, though the muscles of deglutition, as well as those of the chest, evinced always some degree of constriction, with occasional exacerbations. The patient was a young lady of eighteen years of age; the attack was made in the month of January, with both claws and teeth, by a domestic cat that was lurking under the bed, and, which though not known to be ill, had for some time before been observed to be wild, and had been roving in the woods. The fate of the animal is not mentioned. The lacerated parts were incised and purposely inflamed by the application of spirit of turpentine. The wounds healed, and the general health of the patient continued perfect till the beginning of the ensuing April, when she was suddenly frightened by looking out of a window, and seeing a mad-dog pursued by a crowding populace. This proved an exciting cause. She instantly expressed alarm, anxiety, and dejection of mind. In the afternoon she complained of an unusual stiffness in moving her left arm, and its sense of feeling was impaired; she discovered an aversion to company: the irritations of noise, heat, and light, were offensive to her; she avoided the fire, and forbade a candle to be brought near her. The rigidity and insensibility of the affected arm seemed to shoot in a line from the middle finger which had been lacerated, and was accompanied with an acute pain which terminated in the glands of the axilla, where she complained of a considerable swelling. Yet neither of the hands (for both had been injured) were affected with discolouration, tension, tumefaction, or any other mark of local injury, though a degree of lividity had been observed upon the lacerated part of the finger a short time before the disease made its

Exciting cause clear.

Little affection of the parts originally injured.

* Vol. i, Art. iv. p. 78. 8vo. 1810.

appearance. She had a painful constrictive sensation in her chest, and the respiration was interrupted by frequent sighings. The spasmodic symptoms increased, and at length the whole system, but especially the lungs, was affected with violent convulsions: the breathing was exquisitely laborious, but the paroxysm subsided in about two minutes. Frequent sickness and vomiting followed: the convulsive spasms about the throat obliged her to gulp what she swallowed, and she showed a slight reluctance, but nothing more, to handling a glass goblet. The pulse was 132 strokes in a minute; the skin was cool, the tongue moist, the bowels open, the thirst urgent, without any tendency to delirium. She was worn out, however, by sensorial exhaustion and distress, and at last expired calmly at the distance of time from the attack already stated.

Gen. I. Spec. VIII. α E. Lyssa felina. Feline rabies.

Spasms about the throat, but little water-dread.

Fatal termination.

In the general progress of CANINE RABIES, all the above indications are greatly aggravated, and the mind often participates in the disease and becomes incoherent. Whatever be the exciting cause, the wounded part almost always, though not universally so, takes the lead in the train of symptoms and becomes uneasy, the cicatrix looking red or livid, often opening afresh, and oozing forth a little coloured serum, while the limb feels stiff and numb. The patient is next oppressed with anxiety, and depression, and sometimes sinks into a melancholy from which nothing can rouse him. The pulse and general temperature of the skin do not at this time vary much from their natural state. A stiffness and painful constriction are, however, felt about the chest and throat; the breathing becomes difficult, and is interrupted by sobs and deep sighs, as the sleep is, if any be obtained, by starts and frightful dreams. Bright colours, a strong light, acute sounds, particularly the sound of water poured from bason to bason, even a simple agitation of the air by a movement of the bed-curtains, is a source of great disturbance, and will often bring on a paroxysm of general convulsions, or aggravate the tetanic constriction. The patient is tormented with thirst, but dares not drink; the sight or even

β E. Lyssa canina. Canine rabies.

Distinctive signs, and general description.

Gen. I. Spec. VIII. β E. Lyssa canina. Canine rabies.

idea of liquids making him shudder: his eye is haggard, glassy, fixed and turgid with blood from the violence of the struggle: his mouth filled with a tenacious saliva, in which we have already shown, lurks the secreted and poisonous miasm, and he is perpetually endeavouring to hauk it up and spit it away from him in every direction; often desiring those around him to stand aside as conscious that he might hereby injure them. The sound which is thus made, from the great oppression he labours under, and his vehement effort to excrete the tough and adhesive phlegm, is often of a very singular kind; and, being sometimes more acute than at others, as well as quick and sudden, and also frequently repeated, like every other motion of the body, has ocasionally, to a warm and prepossessed imagination, seemed to be a kind of barking or yelping. And hence, probably, the vulgar idea that a barking like that of a dog is a common symptom of the disease. The restlessness is extreme, and if the patient attempt to lie down and compose himself, he instantly starts up again, and looks wildly round him in unutterable anguish. "On going into the room," says Dr. Munckley, describing the case of a patient to whom he had been called, and the author can bear witness to the accuracy of his very forcible delineation, "we found him sitting up in his bed, with an attendant on each side of him: he was in violent agitation of body; moving himself about with great vehemence as he sat in the bed, and tossing his arms from side to side. On seeing us he bared one of his arms, and, striking it with all his force, he cried out to us with the greatest eagerness to order him to be let blood. His eyes were redder than the day before; and there was added to the whole look an appearance of horror and despair greatly beyond what I had ever seen either in madness or in any other kind of delirium." The patient was, nevertheless, "perfectly in his senses at this time; and there was not the least appearance of danger of his biting any person near him; nor, among the variety of motions which he made, was there any which looked like attempting to snap or bite at any thing within his reach: and they who

Sound made in the trachea from vehement effort to excrete phlegm, has sometimes a resemblance to the barking of a dog: whence the vulgar idea of the patient's really barking.

Forcible delineation from Munckley.

were about him had no apprehension of his doing this." * The patient had at this time reached the third day of the disease, and expired about two hours after Dr. Munckley had left him.

Gen. I. Spec. VIII. β E. Lyssa canina. Canine rabies.

There is, however, a considerable difference in many of the symptoms which characterize the progress of this malady, derived from difference of age, idosyncrasy, or some other casualty, so that it is possible no two cases precisely parallel each other. The volume of the Medical Transactions from which I have just quoted, contains three instances of lyssa communicated by different practitioners. In the first, which is Dr. Munckley's, no notice whatever is taken of the original bite, which was both in the hand and cheek, from a favourite lap-dog, and the patient does not seem to have had any return of pain or irritation in these organs. In the second case, which is that of a lad of fifteen years of age, the bite, which was in the leg, was so small that it was scarcely perceptible at the time, and from first to last never gave the least uneasiness†. In the third case, which is that of an adult woman, the disease was preceded by the ordinary prelude of torpor, stiffness, and tingling in the bitten part, shooting upwards to the trunk‡. In the first case, the patient's mind never wandered to the last moment of life, which is a common character of the disease; in the second and third, both were furiously mad, bit themselves, the bed-clothes, and whatever else fell in their way. In all of them, however, there was a severe hydrophobia, and in all of them the pulse did not essentially vary from its common standard. The first died on the third day; the two last recovered; the one under a treatment which consisted principally of opium, and the other under that of salivation; leaving it therefore doubtful how far the recovery may be ascribed to the natural powers of the constitution, and how far to remedies so widely different in their nature. Dr. Marcet's patient did not expire till

Some of the symptoms much disposed to differ in different cases. Exemplified.

Bitten part sometimes not affected: yet such affection generally forms the prelude.

Commonly the mind never wanders: but the patient is sometimes furious and ungovernable.

Pulse rarely much changed from its natural standard.

* Medical Transactions, Vol. II. Art. v. p. 53.

† Id. Art. XII. p. 192. ‡ Id. Art. XV. p. 222.

GEN. I. SPEC. VIII. β E. Lyssa canina. Canine rabies.

the sixth day after the appearance of water-dread, and without any affection in the bitten part *; and towards the close of the disease he sometimes suddenly gulped half a pint of water, or splashed it over his body.

Great variation in the interval between the injury and the incursion of the disease. Ordinary interval about six weeks.

There is also, in these three cases, an equal and most singular discrepancy in the interval between the infliction of the wound and the incursion of the disease, or, in the language of Professor Trolliet, its period of incubation. The first interval was about six weeks, which may be regarded as the ordinary term: the second was only five days: the third is not set down with any degree of precision: the patient is only stated to have been seized "about the time that the second horse died" that had been bitten by the same rabid dog: and hence this interval consisted probably of about a fortnight.

Course and symptoms often discrepant.

A like variation in the course of morbid symptoms distinguishes the series of cases published by Professor Brera, and which took place in the month of November 1804, on the incursion of a wolf sufficiently proved to be rabid. Generally the patients showed no desire to bite or otherwise injure persons about them, but in one instance such a desire was strikingly prominent. In one instance also, though there was a fatal water-dread, there was no flow of saliva. In some the horror extended to liquids of every kind; in others water alone produced it, while wine was drunk with ease †.

This discrepancy apparently dependent upon the predisponent or exciting cause.

This discrepancy seems to depend entirely upon the nature or presence of the predisponent or exciting cause that gives energy to the virus, and without which it may lie, as we have already observed, for an almost indeterminable period dormant, but undecomposed and still, therefore as malignant as when first generated. In the three cases just quoted from the Medical Transactions, the lad who was soonest affected seems to have had a strong predisposition to the disease from the first moment, and which alone became an exciting cause; in the woman,

Sometimes this cause operates from the first almost without an interval.

* Medico-Chir. Trans. I. p. 152.

† Commentario Clinico per la cura dell' Idrofobia, &c. Mem. Soc. Ital. Scienz. Modena Tom. XVII.

who suffered about a fortnight afterwards, there was probably some degree of predisposition, but the immediate exciting cause appears to have been over-exertion in walking, for we are told that "she was seized as she was going on an errand on foot, and had walked about two miles."

Gen. I. Spec. VIII. ♯ H. Lyssa canina. Canine rabies.

There is a like uncertainty among quadrupeds. We have just taken the interval of ten or twelve days as the common term; but in the instance just referred to it may have been considerably longer. According to Meynall, the disease among dogs appears from ten days to eight months after the bite. In Earl Fitzwilliam's hounds which were bitten, June 8, 1791, the interval varied from six weeks to more than six months: and not much less in Mr. Floyer's hounds, as described by Dr. James. It is not therefore to be wondered at, that there should be a great uncertainty among mankind. And hence we find it has occurred a week or fortnight after the bite, three weeks, a month, and sometimes six weeks, and even three months; after which last period, however, notwithstanding occasional instances to the contrary, the patient is generally considered safe. There are two cases published by Dr. Tracher in the American Medical and Philosophical Register*, in which the injury inflicted by the same dog, August 16, 1810, did not produce hydrophobia in either instances till nearly three months afterwards, namely, November 3, and November 14, ensuing: and it is the more remarkable that the first case was that of a child under four years of age; the second, that of an old man of seventy-three. Both terminated fatally: the former case in six days, the latter in seven from the onset of the disease. Upon the whole we may calculate the interval as varying from five or six days to as many months, the usual period being about the same number of weeks.

A like uncertainty among quadrupeds: common interval ten or twelve days: but has been prolonged to six or eight months.

Hence in mankind has varied from a week or fortnight to six weeks or three months: after which the patient is generally considered safe. Illustrated.

Probable mean interval.

The academical journals, and monographic writers, nevertheless, have numerous instances of the malady ap-

A few instances on record of the disease occurring many years afterwards:

* Vol. i. p. 457.

GEN. I. SPEC. VIII. β E. Lyssa canina. Canine rabies.

pearing after a bite of many years' standing; sometimes twelve, eighteen, twenty, and even thirty years: but the cases want authority in most instances. I shall presently, however, have occasion to notice one in which it occurred and proved fatal more than nine months afterwards: and there is another communicated by Dr. Bardsley to the Manchester Society, strongly entitled to credit, however difficult it may be to account for the fact, in which the attack did not commence till twelve years after the bite of a dog supposed to be mad. The patient died in the Manchester Infirmary with decided symptoms of the disease. He had been for some time antecedently labouring under great nervous agitation and considerable depression of spirits: and Dr. Bardsley inclined to ascribe it to this cause rather than to any specific poison lurking in the system. But this is to suppose that lyssa is capable, under particular circumstances, of being generated spontaneously in the human frame, while Dr. Bardsley, as we have already observed, contends that it cannot exist, even *among dogs*, except by contact.

but most want authority.

Singular case of retardation related by Dr. Bardsley: giving an interval of twelve years.

Trolliet's extensive experience.

There are few physicians whose experience seems to have been so extensive upon this melancholy subject, and so actively followed up by judicious and even original views, and post-obit examinations, as that of Professor Trolliet, to whom I have already adverted. Independently of a variety of single and unconnected cases that had fallen under his care, he gives an account of a ravage committed on not less than twenty-three persons besides cattle and dogs, in the department of the Isère in 1807, twelve of whom, for the most part terribly bitten in the face, were conveyed to the Hotel Dieu at Lyons, in which he was clinical professor, and, as such, were placed under his immediate care*.

General train of symptoms.

The general train of symptoms as the patients became successively affected and died, after an active and judicious treatment of preventive as well as curative means,

* Nouveaux Traité de la Rage, Observations cliniques, Recherches d'Anatomie pathologique, et Doctrine de cette Maladie, &c. 8vo. Lyon, 1820.

did not essentially vary from those just related. The local indications mostly but not always preceded. The interval between the bite inflicted by the rabid wolf, and the access of disease, varied from a fortnight to five weeks, and the patients uniformly sunk on the second or third day after a clear developement of the symptoms. In the preceding year, however, M. Trolliet had a case produced by the bite of a mad dog, in which the disease did not show itself till *five months and a half after* the infliction of the wound. The patient was a strong, robust man, of thirty years of age, and the dog had died mad in the veterinary school at Lyons soon after the injury. The first symptoms in this case were the usual ones of pain in the bitten part, which gradually extended to the arm and neck. Two days afterwards the patient was sensible of a vapour or aura which ascended from the abdomen to the head accompanied with a general uneasiness. The symptom of hydrophobia was manifested on the day ensuing; the depleting plan was, in this instance, followed up with a daring urgency, and the man expired on *the evening of the same day.*

Gen. I. Spec. VIII. β E. Lyssa canina. Canine rabies. Ordinary interval. Range of disease. Singular extension of intervals.

M. Trolliet's post-obit examinations are numerous, and they uniformly give proof, like the dissections already noticed, of extensive mischief in various organs remotely situated from each other; the chief of which, however, were the mucous membrane of the trachea and bronchiæ, and the membranes of the brain, especially the pia mater; all which, in direct repugnance to M. Magendie's observations, were infiltrated with red blood, and gave evident proofs of inflammatory action; while the mucous membrane of the bronchiæ and trachea were covered over with a frothy material of a peculiar kind, which M. Trolliet supposes to be the seat or vehicle of the specific virus, and which in his opinion is driven forward into the fauces and intermixed with the saliva by each spastic expiration from the chest. The other organs he found affected as follows: the capillary vessels of the lungs were penetrated with a larger quantity of blood than ordinarily; their substance was emphysematous, or contained an ac-

Post-obit examinations.

Gen. I. Spec. VIII. β E. Lyssa canina. Canine Rabies.

cumulation of air; as did also the heart and large blood vessels in some instances. The blood itself was black, uncoagulating, and of an oily appearance. That taken from the veins during the disease coagulated into an entire cake without any separation of serum. The mucous membrane of the mouth and pharynx were of a pale grey and lubricated by a gentle moisture; they contained no saliva nor any frothy material. The most singular fact of the whole is that "the salivary glands and the cellular substance which envelopes them, afforded not the least vestige of inflammation; nor the slightest alteration in their volume, their colour, or their texture."

Trolliet's hypothesis of the proximate cause of lyssa.

It is this last circumstance that seems chiefly to have induced M. Trolliet to venture upon a new hypothesis, and to suppose that the actual seat of the specific virus is the mucous membrane of the bronchiæ or lower part of the trachea, rather than the fauces or the salivary glands; and had these last in every instance been discovered as clear of any manifest morbid appearance as in the dissections of this ingenious pathologist, there would be strong ground for his conjecture: but, as we have already seen that in some cases there have been found only slight marks of inflammatory action in the bronchiæ, while the fauces and esophagus, and occasionally the stomach and even the ileus have been so inflamed as to approach a state of gangrene, much further investigation is necessary before the old doctrine should fall a sacrifice to the new. The only fact we are at present able to collect from dissections, is a very extensive and violent disturbance throughout the entire frame; sometimes fastening chiefly on one set of organs, and sometimes on another.

Medical treatment of the disease, when it appears, altogether unsettled.

The mode of TREATMENT is a field still perfectly open for trial; for at this moment we have no specific remedy nor any plan that can be depended upon, after the disease shows itself.

Prophylactic course obvious.

Antecedently, indeed, to this period our course is obvious, and particularly if we should be so fortunate as to be consulted at the time of the bite: and should consist in endeavouring, by the promptest and most efficacious

The bitten part to be destroyed.

means, to prevent the spread of the disease, by washing the part well and thoroughly at the nearest spring or river at hand, and by extirpating the virus before absorption has taken place. This has been done in various ways: for the lacerated part has been sometimes amputated or dissected; and at other times totally destroyed by the actual or potential cautery. The actual cautery, by the means of irons heated to whiteness, was first adopted and recommended by Dioscorides *, and afterwards by Van Helmont, Morgagni †, and Stahl: the potential cautery seems to have been proposed as a less terrific mode of operation, and has usually been accomplished by the means of lapis infernalis or decarbonated soda. It is recommended by Schenck, Pouteau, and Dr. Moseley. A notion, however, has obtained from a very early period that the irritation produced by a cautery, whether actual or potential, only increases the tendency to absorption: and Trampel has endeavoured to prove this ‡: on which account Hildanus and Morgagni have advised excision in combination with the cautery: the former proposing to cut out the eschar as soon as it is formed, without letting it remain for a spontaneous separation; and the latter, far more effectually, recommending that inustion should follow the application of the knife instead of preceding it.

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Prophylactic treatment.

Various modes proposed.

Of these three modes of operating, the potential cautery is least entitled to be depended upon, for it is not sufficiently rapid in its action. Of the other two it is, perhaps, of little consequence which is selected, and either of them will generally prove sufficiently efficacious alone, if employed early enough to anticipate absorption, and extensively enough to make sure of extirpating or destroying every portion of the bitten part. There is reason to believe that in many instances this has not been done, so that Camerarius places as little confidence in the actual cautery as in the potential; and Dr. Hamilton

Potential cautery not to be depended upon.

* Lib. VI. † De Sed. et Caus. Morb. Ep. VIII. Art. 26.

‡ Beobachtungen und Erfahrungen, &c. Band. II. passim.

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almost as little in excision. And hence, another reason for employing both means in the manner recommended by Morgagni; in which case we shall find it unnecessary to superadd any of those irritant, exulcerant, or suppurative applications which have been employed by many practitioners with a view of introducing a fresh local action, and maintaining a fresh local discharge, and which have chiefly consisted of cantharides, camphor, alliaceous cataplasms, resins, turpentine, or, as Celsus recommends, culinary salt *. It may likewise be adviseable, as proposed by Sir Kenelm Digby, and since his time by Dr. Haygarth, to wash the wound again thoroughly with tepid water, or tepid wine and water, before the excision is commenced. M. Portal, however, thinks, the application of the cautery, whether actual or potential, may be serviceable long after the wound has been inflicted, and even after it has healed, though he advises its use as early as possible †.

Prophylactic treatment.

Excision and actual cautery to be employed jointly.

A tight ligature to be applied where the parts will admit.

There is also another, and a very easy, and perhaps a very salutary operation, which I would strenuously recommend from the first, even before the process of ablution. I mean that of applying a tight ligature to the affected part wherever it will admit of such an application, at a short distance above the laceration. I have never had an opportunity of trying the benefit of such a measure in my own practice; but analogy is altogether in its favour, for it is well known to be one of the most important steps we can take in confining the poisonous effects of the rattlesnake, and other venomous animals, and of mitigating its violence by the torpor which follows; and it has the sanction of many authorities of deserved credit, as Hacquet, Percival, Vater, Wedel, and Trolliet.

Its benefit from analogy.

Practice loose and apparently incongruous when the constitutional symptoms appear.

If, however, the local plan should prove ineffectual, our curative practice, as already observed, is still unfortunately all afloat, and we have neither helm to steer by,

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* De Medicinâ, Lib. v. Cap. xxvii. § 1.

† Mémoires sur la Nature et la Traitement de plusieurs Maladies. Tom. iv. 8vo. Paris, 1819.

nor compass to direct our course. There is, indeed, no disease for which so many remedies have been devised, and none in which the mortifying character of vanity of vanities has been so strikingly written on all of them. In the loose and heterogeneous manner in which they have descended to us, they seem indeed to have followed upon one another without rational aim or intention of any kind. Yet, if we nicely criticise and arrange them, we shall find that this is not the case.

GEN. I. SPEC. VIII. Entasia Lyssa. Rabies. Remedial treatment.

There are four principles by which physicians appear to have been guided in their respective attentions to this disease. That of stimulating and supporting the vital power so as to enable it to obtain a triumph in the severe conflict to which it is exposed. That of suddenly exhausting the system by severe bleedings and purgatives, as believing the disease to be of a highly inflammatory character. That of opposing the poison by the usual antidotes and specifics to which other animal poisons were supposed to yield. And that of regarding the disease as a nervous or spasmodic, instead of an inflammatory, affection, and, consequently, as most successfully to be attacked by an antispasmodic course of medicines and regimen.

Summary of the common intentions of cure.

The very popular use of volatile alkali and camphor, may, by some, be ascribed to the first of these views, as being powerful stimulants; yet, in fact, they were rather employed from different motives, and fall within one or two of the principles of action which yet remain to be considered. But to this class of medicines, designed expressly to support the vital power, and enable nature herself to triumph in so severe a struggle, belong expressly the warm and cordial confections and theriacas that were at one time in almost universal estimation; as also various kinds of pepper given in great abundance, oil of cajeput, different preparations of tin, copper, and iron, and, in later periods, bark.

First intention: to stimulate and support the vital power. Volatile alkali. Cordial confections and theriacas: pungent aromatics.

In direct opposition to this stimulating and tonic plan, was that of suddenly debilitating and exhausting the system upon the hypothesis that the symptoms of canine

Second intention:

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rabies were those of violent and rapid inflammation. The practice of applying ice or the coldest water to the head, and of submersion in cold water, belongs mostly to this view of the subject, as used a century ago, though in the time of Celsus, it was employed in a much slighter degree to take off the spasm of hydrophobia, and to quench the thirst that accompanied it. "Miserrimum genus morbi; in quo simul æger, et siti et aquæ metu cruciatur: quo oppressis in angusto spes est." * In this almost hopeless state, the only remedy (unicum remedium) Celsus continues, is to throw the patient instantly and without warning, into a fish-pond; alternately, if he have no knowledge of swimming, plunging him under the water that he may drink, then raising his head, or forcing him under it if he can swim, and keeping him below till he is filled with the water; so that the thirst and water-dread may be extinguished at the same time. But there is here, continues our author, another danger, lest the body of the patient, exhausted and worn out by the submersion as well as by the disease, be thrown into convulsions: to prevent which, as soon as he is taken out of the pond, he is to be put into warm oil †.

to take off supposed inflammatory action.

Submersion in cold water: recommended by Celsus.

To be succeeded by a bath of warm oil.

Cold submersion in later times carried to a perilous extreme.

Illustrated.

The bolder practitioners of subsequent times, in pursuing the refrigerating plan, were regardless of convulsions, and persevered at all hazards in reducing the living power to its last ebb; believing that the nearer they suffocated the patient without actually killing him, the greater their chance of success. Hence Van Helmont kept the wretched sufferer under water till the Psalm "*Miserere*" was sung throughout, which, under some choristers, occupied a much longer time than under others; and in the experiments of the Members of the Academie Royale, we meet with instances of a still more dangerous pertinacity; though success is said to have accompanied one or two of them. Thus, M. Morin relates the case of a young woman, twenty years old, who, labouring under symptoms of hydrophobia, was plunged into a tub of water with a bushel

* De Medicinâ. Lib. v. Cap. xxvii. § 2. † Cels. loco citato.

of salt dissolved in it, and was harassed with repeated dippings till she became insensible and was at the point of death, when she was still left in the tub sitting against its sides. In this state, we are told, she was at length fortunate enough to recover her senses; when much to her own astonishment, as well as to that of the by-standers, she found herself capable of looking at the water, and even of drinking it without choking*.

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With respect to the warm oil-bath which Celsus recommends in succession to that of cold water, the present author can say that, in a single instance to which he was a witness when a young man, it produced no benefit whatever. It was prescribed by a physician in consequence of the recommendation of Celsus, but who certainly had not read him attentively, nor was acquainted with the scope of his reasoning. For in this case cold bathing had not been tried antecedently, and consequently there was no danger of those convulsions for which alone the Roman physician enjoins the use of the oil. The experiment, however, was so far perfect, that the tub was full of oil and deep enough to reach the patient's chin.

Warm oil-bath of no service.

In connexion with the cold-bath thus persevered in to suffocation, the reducent or antiphlogistic plan was still farther forwarded, at one time, by the use of strong drastic purgatives, of which colocynth was, for a long period, the favourite †; and at other times by a very bold and perilous use of the lancet.

Drastic purgatives.

Profuse venesections.

Bleeding has lately been revived and carried to the extent of deliquium by large and rapid depletions, and the operation has been repeated almost as long as the powers of life would allow. Dr. Nugent employed it at Bath, in 1753, in one case, and the patient was restored, but musk and other antispasmodics were largely employed at the same time; and Dr. Shoolbred of Bengal has since had two patients who recovered under this process; but he employed mercury at the same time, and it is by no means certain either from the history of the patients, or of the

Revived in the present day:

* Hist. de l'Acadamie Royale, Ann. 1709.

† Hellot, An de Morsis à Rabido Colocynthis? Paris, 1676.

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dog by which they were bitten, that the disease was a genuine lyssa.

Yet whatever benefit this practice may possess, it has no pretensions to novelty: for there is not a single course of treatment ever invented for this intractable disease that has been for upwards of a century more extensively tried and retried, both moderately and profusely, or excited a warmer controversy upon its merits. Poupart, in 1699, espoused the practice, and gives the case of a woman, who perfectly recovered by bleeding her to deliquium, and afterwards confining her for a year to bread and water *.

Berger, in the same year, recommended bleeding, but advised that the blood should be taken from the forehead. In the Breslaw Collections for 1719, is the case of a cow supposed to be rabid and said to be cured by profuse bleeding. And the Philosophical Transactions abound with similar histories, some of them purporting to have been attended with similar success, derived from human subjects: but most of them too loosely given or too indecided in their symptoms to be in any measure entitled to reliance. That of Dr. Hartley and Mr. Sandys was, at one time, appealed to as demonstrative. It is the case of a groom who was bitten by a dog, supposed to be mad, towards the end of November, and who sickened about the middle of January ensuing; he had an aversion to drink, and was conjectured to be labouring under rabies. Venesection was here trusted to almost entirely, and every repetition of the lancet seemed serviceable: in consequence of which he lost a hundred and twenty ounces of blood in the course of a week, by different depletions, which consisted of sixteen or twenty ounces at each time. The man recovered: but few readers will believe him to have been really rabid when they learn that although he had an aversion to drink, he swallowed liquids: that his chief symptoms were sickness, trepidation, a faultering speech and memory; and that, through

* Hist. de l'Academie des Sciences. An. 1709.

the whole course of the disease, he attended, though with some difficulty, to his duty in the stable *.

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The Edinburgh Medical Commentaries are equally replete with cases in which the same plan of evacuation had been tried, but they are also equally unsatisfactory. Thus, Dr. Tilton informs us that, having heard of the recovery of a patient from the disease before us, who had bled profusely and almost to death, by an accidental fall from a high place, and a division of the temporal artery, he employed venesection freely in a case of his own, drawing off from twenty to thirty ounces at a time, and occasionally bleeding to deliquium †. But the symptoms are here also so doubtful that the result is of no importance.

Failure of the practice proved from its discontinuance and specific facts.

The practice, therefore, has been not uncommon for at least a century and a half; and had it proved as specific as some late reports would induce us to believe, it must have descended to us with a wider and more confirmed reputation, and formed the only course to be relied on. But the misfortune is that, however salutary at times, it has often completely failed in the hands of unprejudiced and judicious practitioners; and where it has succeeded it has generally been combined with other means that have been resorted to at the same time. There is a case of failure related by Dr. Plummer in the Edinburgh Medical Essays ‡: but it is not much to be relied on, as not more than twenty ounces of blood were lost at a second and accidental bleeding, and only ten a day or two before by a prescribed venesection. Mr. Peters, however, who employed profuse and repeated bleedings, sometimes even to deliquium, had, in his day, so little dependence on them alone, that he uniformly combined this remedy with opium and mithridate, or other cordials, and in the case which he has introduced into the Philosophical Transactions, he ascribes the success which accompanied his plan to this combined mode of treatment §. In like

Additional examples.

* Phil. Trans. Year 1737-8. † Vol. VI. p. 482.
‡ Vol. V. Part. II. § Phil. Trans. 1745. No. 475.

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manner, Mauchart, as quoted by Bühlmeier, while he advises bleeding, and to an extent proportioned to the length of the interval between the infliction of the wound and the attack of the paroxysm (and where the patient is of a melancholy temperament, even to deliquium), advises, at the same time, that the bitten part be scarified; and when this also has bled till nothing but serum escapes, that the wound be dressed with mithridate, theriaca, or rue, and a defensive plaster put over it, and that the patient take pills, compounded of mithridate and other materials, to the number of nine every day for nine months, keeping himself in a free perspiration, and cautiously changing his linen.

Failure proved upon dogs by Magendie and and others.

In the case of dogs, venesection, how liberally soever made use of, does not seem to be of much benefit. It has lately been the subject of a series of experiments at Paris, under the superintendence of MM. Magendie, Dupuytren, and Breschet, who have carried it to deliquium, but without any success whatever. And hence, though it has unquestionably been serviceable, in many cases, the practice cannot be regarded as a specific.

And abundantly proved upon the human subject by Trolliet.

To close the whole, Professor Trolliet has employed venesection so extensively, and in such variable proportions, from single or double bleedings of sixteen ounces each to not less than *seven pounds*, by different bleedings in the course of a few hours, and in every instance so entirely without effect, as reasonably to put the question at rest for ever. And the more so as, in his hands, the bolder the practice the sooner the patient fell a sacrifice to it. We have a striking example of this in the case of the patient just referred to, whose interval between the infliction of the wound and the signs of the disease extended to upwards of five months. Early on the morning in which the hydrophobia first appeared, blood-letting to syncope was prescribed, and five pounds were drawn off before this effect was produced. The water-dread returned with the return of recollection; and at eleven o'clock on the same morning he was again blooded to the amount of eighteen ounces, when he again fainted. The

And the more profuse the bleeding the sooner a fatal issue.

spasms of the chest and throat became more permanent. At three o'clock fourteen ounces more were taken away when deliquium followed, succeeded by a considerable augmentation of the spasms in extent as well as in violence. At seven in the evening the respiration became frothy as well as difficult, the difficulty increased, and the patient expired in a few minutes, about twelve hours only after the commencement of the hydrophobia.

Remedial treatment. Second intention.

The poison of rabies has, by a numerous body of pathologists, been contemplated as of a nature akin to the poison of other venomous animals, and particularly serpents, and consequently best to be opposed by the usual remedies and specifics to which these are found most effectually to yield. And hence, in the first place, the use of the radix *Mungo* of Kœmpfer (ophiorrhiza *Mungos*, Linn.) still supposed to be a specific for the bite of the cobra di capello and the rattle-snake. In India and Ceylon it is used to the present day as an antidote against the bite of the mad dog: Kœmpfer highly extols it, and Gremmius, who practised with great reputation at Columbo, employed it very largely.

Third intention: to counteract the poison by general or specific antidotes.

Radix Mungo.

Acids and alkalies belong to the same class of antilyssics. Of the former Agricola, who was hostile to the depleting system, preferred the muriatic acid, and regarded this as a specific * even when restrained to a topical application. Poppius preferred the sulphuric; but by far the greater number of practitioners the acetous was held in most esteem. Many combined this last with butter, and used it both internally and externally: Wedel, with other materials; "as a cure", says he, "for the bite of a mad dog, let the patient drink vinegar, theriaca, and rue."†

Acids.

The general suffrage, however, was far more considerable in favour of the alkalies, and especially of ammonia or volatile alkali. There is some reason for this preference. It is well known that ammonia is a valuable medicine, whether applied externally or internally, in a variety of animal poisons. I have successfully used it more

Alkalies.

Useful in many animal poisons.

* Chirurg. p. 391. † Exerc. Semiot. Pathol. Cap. 8.

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or less diluted in various instances, as a lotion against the sting of gnats, wasps, bees and vipers; and I have seen it of great service in checking the poison of the rattle-snake, and restraining the extent of the inflammation. On the continent, and especially in France, the usual form in which ammonia was formerly employed in cases of lyssa, was that of the eau de luce, a caustic spirit of ammonia prepared with quick-lime combined with rectified oil of amber, rendered more easily miscible by being rubbed into half its weight of soap. This was in general employed both externally and internally *, though in the Journal de Medicine, we have several reports of a successful use of it when confined to an internal trial alone: especially one related by M. Hervet †, and another by M. Rubiere ‡.

Eau de luce.

Mercury: first recommended by Desault, afterward freely employed by James, co-externally and internally, and regarded both as a prophylactic and antidote:

Mercury, from its proving a specific in syphilis, and more especially from its specific action on the salivary glands, the immediate outlet of the poison of rabies, has had a strong claim to general attention; and has been very extensively tried in various forms, and acquired a high degree of reputation. It was first recommended by Desault of Bordeaux in 1736, and afterwards very confidently by Dr. James in our own country, as a certain cure for man and other animals. He used it both as a prophylactic at the time of the bite, and an antidote at the commencement of the disease. He employed it as well externally as internally; but his favourite form was that of the turbeth mineral, in the shape of pills. He has published in the Philosophical Transactions, a full account of his success with this medicine on Mr. Floyer's hounds, after they had made a trial of every other favourite and fashionable remedy in vain. These dogs, as we have already observed, were affected with a severe hydrophobia, which has been denied by some writers to

in quadrupeds as well as in man.

* Sage, Erfahrungen, &c. p. 49. Guettard, Mémoires sur differentes Parties des Sciences et Arts. Paris. 1768. p. 122.

† Journ. de Médicine. Tom. LXII. ‡ Id. Tom. LXIV.

be a symptom of the disease as appertaining to quadrupeds. All the hounds, we are told, that were salivated with the mercury, in whatever stage of the malady, recovered, and the rest died *. His experiments on mankind are less complete: for they amount to not more than three, and in each of these the medicine was employed as a preventive, shortly after the infliction of the bite; and hence, as the patients never became rabid, we cannot be sure that they had received the contagion, or would have had the disease, had the mercury never been employed. The muriate of the metal was another favourite form, which by Loisy, was used together with inunction.

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The grand object was to excite a speedy salivation, and maintain it so long as there was supposed to be any danger; and especially where the administration had been delayed till the paroxysm had shown itself. Frank, Girtanner, De Moneta, Raymond and a host of writers upon the subject, deny, not only that mercury is a specific, but that it has ever produced a cure, in whatever way it may have been employed. Kaltschmid, on the contrary, with an unjustifiable confidence, calls it *remedium indubium*†; and De Choiseul a *methode sure et facile*‡. In the fortieth volume of the Journal de Médicine there is a relation in which mercurial inunction seems to have been successful in a genuine case, and I have heard of one or two other instances that have occurred in our own country.

Denied by many to be either a specific, or of any use; but regarded by Kaltschmid and De Choiseul as an only and certain cure.

As diuretics were supposed to possess a strong alexipharmic power, or that of expurgating the system from animal poisons in general, these have also had their votaries, and been in high reputation, as a remedy for lyssa. Cantharides were at one time the favourite medicine under this head, or some other stimulant insect of the coleop-

Diuretics.

Cantharides and other coleoptera.

* Phil. Trans. Vol. xxxix. Year 1735-6.

† Dissertatio de Salivatione Mercuriali, ceu indubio præservationis et curationis remedio adversus rabiem caninam. Jan. 1760.

‡ Nouvelle Méthode, sure et facile, pour le Traitement des Personnes attaquées de la Rage. Paris, 1756.

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terous order, as the meloe, lytta, or one or two species of scarabæus; which, like mercury and ammonia, were sometimes taken internally alone, and sometimes applied topically also, to keep up a perpetual irritation. Bohadsch tells us gravely that the disease will always yield to ten cantharides powdered and introduced into the stomach *: Monconys, that the powder should be continued from the bite to the time in which we may reasonably expect the symptom of hydrophobia; and adds that this medicine, which was regarded as an arcanum in his day, was a remedy of publicity over all Greece †. He might have extended his theatre; for Egypt was as well acquainted with the general principle of this practice as Greece or Hungary; and it is a positive exhortation of Avicenna, that whatever diuretic may be employed should be carried to its utmost acrimony, even to the discharge of bloody urine ‡. M. Axter of Vienna has of late revived the use of cantharides, and tell us that he has for thirty years employed this medicine with far more success than any other, after having previously made experiments with and been disappointed in the use of all other remedies, as musk, camphor, belladonna, opium, or oil, used internally and externally, and water-bathing. But it does not seem that he can speak further than to its supposed prophylactic powers, as he does not appear to have tried it in the acute stage of the disease §.

Cantharides re-employed by Axter.

Ash-coloured liver-wort, or lichen caninus, Linn.

The ash-coloured liver-wort (lichen *terrestris cinereus* Raii), was another diuretic of great popularity, and which seems at length to have triumphed over the stimulant insects, and to have superseded their use; on which account Linnéus changed its trivial name from *cinereus* to *caninus*. In our own country, this medicine was at one time peculiarly in vogue. It was given in powder, with an equal quantity of black pepper, a drachm and a half of the two forming the dose for an adult, which

* Posit. Zoolog. in Klinkosch. Diss. Select.
† Voyages, i. p. 406. ‡ Lib. iv. Fen. vi. Tr. iv.
§ Nouv. Biblioth. Germ. Medico-Chirurgicale. Paris, 1821.

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was taken for four mornings fasting, in half a pint of warm cow's milk; the patient, however, was first to lose nine or ten ounces of blood, and afterwards to be dipt in cold water for a month together, early in the morning. And such was the general confidence in this plan, or rather in the antilyssic power of which the lichen was supposed to be the most active principle, that its virtues formed one of the most common subjects of eulogy in the Philosophical Transactions at the time when Mr. Dampier introduced it to public notice at an early period of the history of the Royal Society *; while, at the earnest solicitation of Dr. Mead, the powder was admitted in the year 1721 into the London Pharmacopœia, under the title of Pulvis antilyssus; who declares, that, "When united with the previous venesection, and subsequent cold-bathing, he had never known it fail of a cure †, though he had used it a thousand times in the course of thirty years' practice."

Pulvis antilyssus.

Emetics.

How far emetics may be serviceable general trial has not, perhaps, been sufficient to determine. They have often been found capable of relieving spasms of the throat, and enabling the patient to swallow liquids when every other plan has failed. They were hence recommended by Agricola, but only, perhaps on account of their violence upon a weakened frame, as a sort of forlorn hope, for he does not advise them till after the third day. Dr. Satterley, however, has given a case in the Medical Transactions, which he regards as rabies, in which vomiting was employed from an early period of the disease, and with very decided advantage ‡. But there seems to be a doubt whether the patient here referred to laboured under genuine lyssa. He had been bitten three months before by a dog, but the fate of the dog was not known: the cicatrix betrayed no uneasiness or irritation precursive to the disease, or during its course: the hydrophobia was remittent, or intermittent, so that the patient drank liquids

formerly employed by Agricola:

more lately by Satterley, with success, but in a doubtful case.

* Mechanical Account of Poisons, Art. 3.

† Chirurg. parv. Nurüb. &c. 8vo. 1643.

‡ Vol. iv. p. 348.

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at times with tolerable ease: the spastic action ran to a greater extent over the muscular system than usual, so as at one time to produce emprosthotonus, and the patient did not expire till at least a week after the attack: all which are very unusual symptoms in lyssa, and have seldom, if ever, been combined in the same individual.

Fourth intention: to allay nervous and spasmodic irregularities by an employment of antispasmodics and sedatives.

In lyssa, however, the nervous system appears to be that which is by far the most severely tried, and to which the disease may be most distinctly referred. And hence it is not to be wondered at that antispasmodics and sedatives should also have been had recourse to very extensively, and obtained a very general suffrage. In effect, whatever benefit in this disease has at any time been derived from ammonia, camphor, or cold-bathing, it is more easy to resolve their palliative or remedial power into the principle of their being active antispasmodics, than to any other mode of action. The more direct antispasmodics and sedatives, however, employed in this malady were

Stramonium.

musk, opium, bella-donna, nux vomica, and stramonium. The last has been chiefly tried in India, where three drachms and a half of the leaves infused in a very large portion of water or other common drink, and swallowed daily for three days in succession after the bite, was, at one time, a very approved and popular remedy.

Musk:

Musk, opium, and belladonna, however, are the antispasmodics which have been chiefly depended upon in Europe. They have sometimes been given in very large doses alone, but more generally in union with other medicines. Cullen seems doubtful of the powers of either, apparently from not having had sufficient opportunities of witnessing the disease, and their effects upon it, and hence refers us, in both instances, without venturing upon any decisive opinion of his own, "to the labours of the learned and industrious Societé Royale of Paris, who have taken much pains, and employed the most proper means for ascertaining the practice in this disease."* With respect to musk he admits, however, that Dr. Johnston has given us two

little dependence to be placed on either.

* Materia Medica, Vol. II. p. 252. 380.

facts that are very much in favour of its power: and "I have", says he, "been informed of an instance in this country, of some large doses of musk having proved a cure after symptoms of hydrophobia had come on."* Hilary says, "in these cases it acts as a sudorific"; and Gmelin regarded it as a specific antidote †.

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Opium not much more efficacious than musk.

Opium, in like manner, when employed alone, was given in large doses, and we have numerous cases on record in which this, like the preceding medicines, is said to have operated a cure‡. But unfortunately neither musk nor opium, in whatever quantity employed, have been found successful in general practice. Tode more especially has pointed out the inefficiency of the former, in the largest doses referred to §; and Raymond has confirmed his remarks ‖. But a late experiment of Professor Dupuytren of the Hotel-Dieu, has given a still more striking and incontrovertible proof of its utter inefficacy, if not in all cases of the disease, in certain states and circumstances.

Striking instance of its effects by introduction into the circulation.

Surlu, a man aged twenty-four, had been bitten by a dog sufficiently proved to be mad, had been cauterized immediately afterwards, and been discharged as supposed to be cured. In about a month from the time of the bite, he was attacked with rabies in its severest symptoms, and conveyed to the hospital. Opium was the medicine determined upon, and as the constriction of the throat prevented it from being given by the mouth, a gummy solution was injected into the veins, for which the saphæna and cephalic were alternately made use of. Two grains of the extract were in this manner thrown in, and the patient was in some degree tranquillized for an hour or two: the dose was doubled towards the evening of the same day. It was repeated at intervals, and at length increased to eight grains at a time. The relief it afforded, however, was never more than temporary: and he expired

* Materia Medica, Vol. II. p. 252. 380.

† Diss. de specifico antidoto novo adversus effectus morsû canis rabidi. Tub. 1750.

‡ Dantzic, Gazette de Santé, 1777. p. 51. § Annalen, IX. p. 33.

‖ Med. Observ. and Inquiries, Vol. V.

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on the fifth day from the incursion *. M. Trolliet used it freely in the form of pills, in combination with bella-donna. But in no instance had he reason to boast of his success, though he gave, in some cases, twenty-seven grains of opium, and nine of the extract of belladonna in the course of twenty-four hours. Professor Brera employed the bella-donna, but united it with mercury instead of with opium: his doses were carried gradually to a great extent, insomuch that the patients at length took the powdered root of the belladonna, to the amount of three drachms a day; and in about forty-four or forty-six days, swallowed seven ounces and a half of this drug, and ten grains of corrosive sublimate, besides rubbing in some ounces of mercurial ointment †. The object was to keep the system, as much as possible, under the influence of mercury, evidenced by ptyalism, and of the narcotic effects of belladonna, so long as the combination was continued. As a preventive it seems to have been successful; though several of the patients appear to have advanced to the first symptoms of acute affection, having had some degree of water-dread, and recurring irritation in the bitten parts, the disease did not proceed beyond these initiary steps. But we have no proof of success from this plan after the pathognomic signs had shown themselves. The warm-bath was also combined with the above practice. In like manner musk, opium, and belladonna, have been all united; and sometimes combined with camphor, oil of amber, inunction with olive oil ‡, or bleeding. Musk was also at one time very generally combined with cinnabar, and in this form supposed to be peculiarly efficacious. The famous powder employed by the natives of Tonquin, and introduced into this country by Mr. Cobb, on which account it was called pulvis Cobbii or Tunguinensis, consisted of sixteen grains of musk with forty-eight grains of cinnabar, mixed in a gill of arrack. This, taken at a

Medical treatment. Fourth intention.

Belladonna in large doses combined with mercury.

Useful as a preventive.

Trials of opium and musk when combined, and united with other means.

Tonquin powder or pulvis Cobbii.

* Orfila, Traité sur les Poisons, &c.

† Mem. Soc. Ital. Scienz. Modena. Tom. XVII.

‡ Vater, Pr. de Olei Olivarum efficaciâ contra morsum canis rabiosi, experimento Dreadæ facto, adstructâ, Viteb. 1750.

dose, is said to have thrown the patient into a sound sleep and perspiration in the course of two or three hours; and where it did not, the dose was repeated till such effect was produced. And this medicine also was regarded as a specific during the short career of its triumph, and a cure was commonly supposed to follow the administration of the medicine.

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The sedative power of several of the preparations of arsenic, however, had perhaps a fairer pretension than any of these, and especially as, like mercury, it has for ages been employed with decided benefit in Asia, in the case of syphilis. Agricola mentions its use in his day*, but the forms in which it was then employed were rude and incommodious, and they do not appear to have been followed with much success. It is to be regretted, however, that even in the elegant and manageable form of Dr. Fowler's solution, it has not been found to be more efficacious. It has of late years been tried internally in various cases, and particularly with great skill, and in full doses, by Dr. Marcet, but in every trial it has disappointed our hopes. Applied externally, as a preventive, to the bitten parts, Dr. Linke, of Jena, thinks he has succeeded. But as his trials were made on dogs inoculated from the froth of rabid animals after death, no dependence can be placed on them.

Arsenical preparations.

Under this head I may also observe that the Prussic acid has occasionally been had recourse to, but without any apparent benefit. In the form of the distilled water of the prunus *Lauro-cerasus*, it was not long since made a subject of experiment at Paris by M. Dupuytren, who injected this fluid into the veins of various dogs, and appears to have done so in one instance into those of a man: but in every case without effecting a cure.

Prussic acid.

There are two or three other remedies which it is difficult to arrange, but which have also acquired a considerable celebrity in the cure of lyssa; and hence it is necessary to notice them.

Anomalous remedies:

* Comment. in Popp. p. 84.

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The first is the Ormskirk medicine, so called from its preparer, Mr. Hill of Ormskirk, supposed, for the inventor could not be prevailed upon to publish his secret, to consist of the following materials: powder of chalk, half an ounce; armenian bole, three drachms; alum, ten grains; powder of elecampane root, one drachm; oil of anise, six drops. The single dose thus compounded, is to be taken every morning for six times in a glass of water, with a small proportion of fresh milk. If this be the real formula, and the analysis of Dr. Black concurred with that of Dr. Heysham, in determining it to be so, the inventor seems to have contemplated the specific virus to be an acid, for the basis of this preparation is unquestionably an alkaline earth. And with regard to its occasional efficacy, the latter writer, following the general current of opinion of the day, informs us that this has been so thoroughly established by experience, that there can be no room to doubt it. Dr. Heysham himself, however, admits of various cases in which it failed, while in many instances his successful ones do not afford proofs of an existence of the genuine disease*.

its basis alkaline.

The second of the anomalous remedies I have just referred to, might possibly have been introduced under the head of the common antidotes for the bites of venomous animals; but as it has reputed powers in some degree peculiar to itself, it is best to notice it separately. This is the alyssum, or alysma *Plantago* (madwort plantain), of established reputation in America as a specific for the bite of the rattle-snake, where it seems to rival the imprescriptible claims of the ophiorrhiza *Mungos*, though its juice is generally given in combination with that of the common horehound—an addition that certainly does not promise much accession to its strength.

Alyssum or madwort.

This species of alyssum has for some ages been a popular remedy for canine madness, especially in the north of Europe: and in a late communication to Sir Walter Farquhar in the Russian tongue, translated and pub-

* Diss. Med. Rabie Caninâ, 8vo.

lished in Mr. Brande's Journal*, we are told that it still retains its popular sway and reputation over a great part of the Russian empire: and that in the government of Isola it has never failed of effecting a cure in a single instance for the last five and twenty years. The preparation is simple: the root is reduced to a powder, and the powder is to be eaten by being spread over bread and butter. Two or three doses are said to be sufficient in the worst cases: and will be found to cure mad dogs themselves.

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The butcher's broom (genista *tinctoria*), and side-leaved scull-cap (scutellaria *laterifolia*), have however rivalled the reputation of the plantago; and in our own day the first is powerfully recommended by M. Marochetti of Moscow, in the St. Petersburg Miscellanies of Medical Science, as employed with great success in the Ukraine; and the second by Dr. S. Spalding of New York, who tells us that it has been successful in America in upwards of a thousand cases, not only in men, but in dogs, swine, and oxen.

Other plants.

The next remedy I have to notice is also of extensive use in the present day, and comes before us with no mean authority. Whilst the medical practitioners of the East are pursuing their plan of abstracting rabid blood from the system, as the surest means of curing canine madness, the physicians of Finland have undertaken to accomplish the same effect by introducing rabid blood into the morbid frame. In the second number of the Hamburgh Medical Repository, Dr. W. Rithmeister of Powlowsk in Finland, has given an article in which he has collected a multiplicity of striking cases and various authorities in proof that the blood of a rabid animal, when drunk, is a specific against the canine hydrophobia, even where the symptoms are most strongly marked. The rabid wolf-dog, or other quadruped, is, for this purpose, killed, and its blood drawn off and collected as an antilyssic ptisan. Dr. Rithmeister's communication contains a

Rabid blood.

* Journal of Sciences and the Arts, No. IX. p. 142.

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letter to himself from Dr. Stockmann of White Russia, confirming this account, and stating the practice to be equally common and successful in his own country.

I will only add, that a discussion has lately taken place between two Italian physicians of distinguished reputation, Professor Brugnatelli of Pavia, and Professor Valetta of Milan, upon the virtues of chlorine as an antidote for the disease in question. The former has strongly recommended it*; and the latter has denied that it is of any use†: in answer, however, to which denial, Professor Brugnatelli has adduced various authenticated facts, by which what he calls the *specific* powers of the chlorine have been established and verified‡.

I have thus endeavoured, upon a subject of so much interest and importance, to put the reader into possession of the general history of the practice that has hitherto prevailed; and he will at least allow that if the result be highly unsatisfactory—as most unsatisfactory it is—such conclusion does not result from idleness on the part of the medical profession.

But how are we to reconcile the clashing and contradictory statements which the present analysis unfolds to us? This is a question of no easy solution. Yet there are many circumstances which ought to be borne in memory, and that will, in a certain degree, account for such opposite views and decisions, without rudely impeaching the veracity of any of the experimenters.

Conciliation of clashing opinions and practice. Remedies serviceable in some cases, though not in others.

In the first place, it is possible that the morbid poison itself, like that of plague or intermitting fever, may vary in its degree of virulence, in certain idiosyncrasies, certain countries, or certain seasons of the year: and hence that a medicine which has proved useless in general practice, may succeed in particular persons, particular places, or at particular periods: or, if inactive in itself, may be employed in so much milder a degree of the disease that the

* Giornale di Fisica, &c. Pavia, Dec. 1816.

† Biblioteca Italiana. Gennaj. 1817.

‡ Giornale di Fisica, &c. Pavia, Febbraj. 1817.

constitution may be able, in most or many instances, to triumph over it by its own powers alone.

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It is a just remark of Celsus that omnis ferè morsus habet quoddam virus*; and we have already given proof that this is particularly the case when the animal that bites is labouring under the influence of violent rage or other sensorial excitement: the symptoms incident upon which produce a severe effect upon the nervous system, and often simulate those of genuine lyssa. And hence, there can be little doubt that these symptoms have often been mistaken for lyssa, and have given a celebrity to the medicines employed for their cure to which they were never entitled. In various cases, as we have already seen, the disease commences almost coetaneously with the external injury, or inoculation: in others, not till months or even years afterwards. In some instances the first symptoms of the disease show themselves in the bitten part, and even this in a very different manner, for there may be a troublesome sense of numbness, or of irritation; and this irritation may be confined to the cicatrix, or travel up the limb, and produce acute pain or spastic action: while in other instances there is no local affection whatever through the entire progress of the malady. Ordinarily speaking, hydrophobia, or water-dread, is one of the most common, as well as one of the severest symptoms of the disease; yet there are instances, even where the rabies has terminated fatally, in which water-dread has not been once complained of. Most commonly again, on an early examination after death, the fauces and parts adjoining are found red and inflamed: but we have already observed that Morgagni dissected patients in which there was no such appearance whatever. And in two bodies examined after death by Dr. Vaughan, the fauces, esophagus, stomach, diaphragm, and intestines, were all in a natural state.

Cases supposed to be genuine lyssa not always so: hence some medicines celebrated for cures they never performed.

Variable nature of the symptoms in lyssa has often led to deception.

There can be little or no doubt, morever, where many

Where many persons bitten at the same time, the

* De Medicina, Lib. v. x.

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persons are bitten in quick succession by the same rabid animal, that the poison is not equally introduced into all of them. In some cases it may be expended entirely upon the earlier victims, and hence the rest, though bitten, may be free from the virus; while in others where the teeth have to pass through various foldings of clothes, it is possible that the virus which still remains may be wiped of in its passage, and the laceration be nothing more than a clean wound from the first. And in all such cases a sanguine experimenter, without allowing for these circumstances, will be apt to persuade himself, whatever medicine he makes use of, that the absence of the disease is owing to the efficacy of the plan or the medicine he has prescribed, and which he is hence tempted to hold up to the world as an antidote or specific.

poison not equally applied to all: whence some have been supposed to derive a prophylactic power from medicines which they do not possess.

Illustration of several of the above remarks.

Some of these remarks will best explain the very different results of the same mode of treatment, in the eleven patients entrusted in 1775 to the care of M. Blaise of Cluny, after having been dreadfully bitten and torn by a mad wolf. The principal remedy was mercurial inunction, though combined with antispasmodics. The mercury was carried on in all of them to salivation, and the treatment continued for above a month, in those that lived long enough for this purpose. One died with great horror and water-dread about the twelfth day from the injury, and after the mercury had begun to act. A second perished under hydrophobia, furious, and at length comatose, just at the close of a month, his mouth and gums being slightly affected by the mercury. A third died nearly six weeks after the commencement of the mercurial plan, having been taken away by his friends on the eighteenth day apparently in a state of doing well. The remaining eight, after having exhibited greater or less symptoms of spasmodic affection, but never amounting to hydrophobia, are said to have recovered, and were discharged accordingly*: but in a subsequent work M. Blaise informs us, that even one of these died in a paroxysm of

* Methode éprouvée pour la Traitement de la Rage.

hydrophobia six weeks after his discharge and supposed restoration to health *.

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In all these cases the success is ascribed to the action of the mercury, and the want of success to some irregularity or other committed by the patient while under medical care. The enormities, however, are in general rather far fetched, and not very convincing. Thus, in the last of the above cases, it is ingeniously observed that the man who had been so long discharged as well, *four* days only before the symptoms of hydrophobia appeared on him, had thrust his arm down the throat of an ox which was said to be mad; though no proof is offered that the ox was really mad, nor is it pretended that even this reputed mad ox inflicted any bite upon the arm whatever. Who does not see, that in all these cases the mercury may have been guiltless of exercising any controul? that those who died may have died in consequence of an effective lodgement of the virus in the wound inflicted, and that those who survived, may have survived because it obtained no admission to the bitten part?

Medical treatment. Different results of the above cases capable of being differently accounted for.

It is, moreover, highly probable that a spontaneous cure is occasionally effected by the strength of the constitution, or the remedial power of nature alone. The fact appears to be, that the disease requires about six or seven days to run through its course, at the expiration of which period the system seems to be exonerated by the outlet of the salivary glands, of the poison with which it is infested. And hence, if by any means it be able to sustain and carry itself through this period, without being totally exhausted of nervous power in the course of so protracted and prostrating a conflict, it will obtain a triumph over the disease: and any prescribed medicine made use of on the occasion will seem to have effected the cure, and will run away with the credit of having done so, till subsequent instances dissolve the charm, and prove beyond contradiction the utter futility of its pretensions.

Rabies sometimes, perhaps, cured spontaneously.

* Hist. de la Societé de Medicine, Tom. II.

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The inactivity of the poison and length of interval before it often operates another occasional cause of deception.

I have already had to observe that the contagion of lyssa, though highly malignant, is neither very volatile nor very active, and in every instance, perhaps, requires some exciting or predisponent cause to enable it to take effect: but, as it seems to be more indecomposible than any other contagion we are acquainted with, it is capable of lying latent and undissolved for months, if not years, till it meets with a cause of this kind. And hence the very long and uncertain interval which sometimes occurs between the attack of the rabid animal and the appearance of rabid symptoms, has often proved another source of deception; of which we have a singular example in Mr. Nourse's case, related in an early volume of the Philosophical Transactions*; which states that a lad, who had been bitten in the thumb by a mad dog, took morning and evening for forty days a drachm of the pulvis antilyssus already described, and bathed in the sea for ten days in succession. He was in due time reported to be well, and the cure was altogether ascribed to the specific virtues of the antilyssic powder. He was shortly afterwards cut for the stone, from which also he recovered: NINETEEN MONTHS after which operation, however, he was attacked with hydrophobia and the other symptoms of canine madness, and fell a victim to their violence. Had this patient died under the operation of lithotomy, or from any other circumstance in the interval, the virtues of the antilyssic powder would have obtained a complete, and indeed a rational triumph in this instance: and even now there may be a question whether the appearance of the disease was not retarded by the plan pursued: though its specific power can no longer be maintained for a moment. The occasional exciting cause which, in this instance, at length gave activity to the dormant virus, is not pointed out to us. But it is difficult, if not impossible, to account, without such a cause, for the quickening of the lurking seminium of the poison at this time rather than at any other. And the following

Strikingly exemplified.

Exciting cause present though not noticed.

* No. 445.

valuable remarks of Dr. Perceval, occurring in his manuscript comment on the author's volume of Nosology in relation to this subject, are in full illustration of the same opinion.

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"A wine porter was attended, in Dispensary practice, for a low fever: after a time appeared symptoms of lyssa; and much inquiry elicited the recollection of his having been slightly bitten by a dog six weeks before. In the interval he was convicted of some fraudulent practice in the cellar of his master, to whom he owed great obligation, and was dismissed with disgrace. Anxiety on this event seemed to produce the fever which terminated in lyssa.

Analogous remarks and illustrations by Perceval.

"Lately an officer in our barracks was bitten by a dog, whose madness being recognised, the bitten part was excised immediately; after an undisturbed interval of two months he was advised to go to England to dissipate the recollection of the accident: there he exercised himself violently in hewing wood; felt pain in the hand which had been bitten; embarked for Ireland; had symptoms of hydrophobia on board the packet, and died soon after his arrival.

Further illustration,

"I have lately seen a case of hydrophobia treated ineffectually by most profuse bleeding and large doses of opium. Here too the bitten part was extirpated by caustic within an hour. He was a man of steady mind, nor could any occasional cause be assigned for bringing the poison into action, except that a bilious diarrhœa was suddenly checked.

in which profuse bleeding and large doses of opium of no use.

"From the varying period of attack we might infer that the influence of occasional causes is very considerable. In the last patient hydrophobia supervened exactly five weeks from the time of the bite; he lost a hundred and eight ounces of blood in twelve hours which sunk him much; violent perspiration, and at length delirium, attended the water-dread; during the last twenty-four hours he swallowed, and recovered his senses; and died slightly convulsed whilst cutting an egg. These cases seem to point out agitation of mind and feverish excitation as powerful occasional causes."

The influence of occasional causes very considerable.

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In a disease so intricate as lyssa a very complex treatment is by no means unpardonable: but it may fairly, I think, be questioned whether the complexity and the energy of the means employed to produce a cure may not, rather, in some instances, have had an opposite effect, and have hastened and confirmed a fatal issue. A patient bitten by a mad dog, having in vain tried and persevered in the use of the Ormskirk medicine, was next put under the joint care of Dr. Watson and Dr. Fothergill. Having been bled standing, as long as he could stand, he was next immersed in a warm bath, where he was ordered to remain till he again became faint; a clyster of milk and water with a drachm of Dover's powder dissolved in it was injected as soon as he was removed from the bath; half an ounce of mercurial ointment was at the same time rubbed into the legs and thighs, and three grains of thebaic extract given in the form of pills: two grains being ordered to be continued every hour till he became sleepy.

Violence and complexity of the means employed have probably sometimes proved mischievous if not fatal. Exemplified.

To stand the brunt of a treatment thus vigorous would demand no ordinary constitution, even without the co-operation of any disease. But that the wretched sufferer should sink (as he did, in a few hours) under the assault of such a malady and such a mode of cure, cannot be matter of surprise to any one.

Hence the subject of treatment highly difficult and afflictive.

The whole subject is afflictive, as well in respect to its treatment as its progress. But how, after all, is a young practitioner to proceed when he meets with a case of rabies? This is a most important question; and the following remarks, submitted with great deference as the result of some little personal experience, and no small degree of reflection, are meant to meet it, and to point out the path, which, in the present unsettled state of the subject it may, perhaps, be most expedient to adopt.

General result and recommendatory process.

From the whole of the preceding survey it is sufficiently clear that we have no direct specific for the cure of the disease; and, hence, whatever plan we employ must be palliative only. It appears also that the disease consists in a poison of a peculiar kind capable of assimilating some

No direct specific, and hence whatever plan is

of the animal secretions to its own nature, and that the new matter, or contagion, hereby produced, continues to be eliminated for five or six days principally, if not entirely, from the excretories of the salivary glands, as the inflammation of gout unloads itself on the extremities, and the specific matter of exanthems on the surface generally: and that, at the expiration of this period, or as soon as such depuration has been effected, the disease abates, and the patient is restored. It appears, also, that the disease is one of the most dangerous in the whole catalogue of nosology, and that few patients recover from it under any plan of medicine that has ever been devised: but that, nevertheless, some patients have recovered under almost every mode of treatment, however incongruous and contradictory to other modes; and hence, that many cases of restoration must be rather referred to a natural, or spontaneous cure, than to the virtue of medicines.

pursued can be palliative only.

Poison of lyssa of a peculiar kind, and requires five or six days to be thrown off, and perhaps altogether at the salivary glands: after which the disease abates.

In this state of things it seems reasonable that our first intention should consist, as in various other kinds of animal poisons communicated in the same manner, in supporting the system generally, and the nervous part of it more particularly, so that it may not sink under the violent excitement and augmented secretion which the organ of the nerves has to encounter during so perilous a struggle. And it is to this principle we have to resolve all the benefit which has at any time been found to result from the use of the stimulant theriacas and other cordials of the old practitioners. On this account ether, ammonia, and camphor, have a strong claim upon our attention, and especially the two last, as they may be given in a solid form. All the pungent spices belong to the same class, as cardamum-seeds, and capsicum, and may be adverted to as auxiliaries; nor should wine or even ardent spirits be refrained from, if the patient can be induced to swallow them; moderately through the entire course of the disease, but liberally and profusely as his strength declines. Our grand object must be to keep him alive, and prevent a fatal torpitude in the sensorium for a certain number of days, at any expense of stimulants, or of sub-

Hence the system to be supported generally and especially the nervous part of it by cardiacs and diffusible stimulants: occasionally by wine and ardent spirits.

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sequent debility. Wine is profusely given with great success in the bite of the most venomous serpents of the East, and analogy justifies us in proposing it in the present instance.

The spastic action to be diminished by as much quiet as possible and a prohibition of unnecessary exertion.

Our next intention should be to diminish, as much as possible, the spastic action of the chest and fauces, and to prevent a return of the exacerbations. And to this end as much quiet and composure as we can possibly procure, under so restless a state of body, seems imperatively called for, and is far more likely to be serviceable than the fatigue of taking the patient repeatedly out of bed for the purpose of plunging him either into a hot or a cold bath.

By sedatives, and especially opium,

And though opium has never of itself, perhaps, produced a cure, it seems adviseable to try it in liberal doses; and the more so as several of the cases already adverted to afford a direct proof that it is capable, occasionally, of producing some degree of tranquillity for a short period.

combined with some diaphoretic, as Dover's powder.

In employing it, however, it seems most reasonable, from analogy, to combine it with some diaphoretic, and particularly with ipecacuan in the form of Dover's powder, since, at all times, the animal frame is most disposed to be quiet and free from irregular actions, when there is a general moisture upon the surface. In many cases of rabies such a state of body has been found unquestionably favourable; and in one of the instances already quoted from the Medical Transactions, the benefit was so striking that the practitioner could not avoid regarding it as critical. It is possible, also, though no great stress can be laid upon this remark, that a part of the virus itself may be hereby eliminated, as in various other cases of animal poisons.

The morbid matter to be, if possible, eliminated from the body, and chiefly by means of the salivary glands by the use of mercury.

To obtain and encourage such elimination should indeed be our first object, if we had any means of accomplishing it upon which we could fully depend. This, however, we have not; but, as the quarter to which the virus is directed is the salivary glands, of which, indeed, we have full proof in consequence of the saliva being the fomes of the poison apparently as soon as it becomes elaborated; and as we have a medicine which possesses a

specific influence on this organ, and is capable of augmenting its secretion to almost any extent, it seems of the utmost importance that, while we endeavour to support the system, and to allay the nervous irritation, we should endeavour at the same time to quicken the elimination of the morbid matter, by exciting the salivary emunctories, and thus probably also carrying it off in a diluter and less irritant form. It is difficult to withhold one's assent to all the numerous instances of cure which are so confidently asserted to have followed upon the use of mercury carried to the point of free salivation. And hence, without allowing this medicine to be a specific more than any other, we may indulge a reasonable hope of its forming a good auxiliary, and should employ it freely, either externally, internally, or in both modes simultaneously; but with as little disturbance to the patient as possible, till a copious ptyalism is the result.

Its apparent advantage in many cases resolvable into this principle.

Fever, or inflammatory action, does not necessarily belong to lyssa in any stage: and the present mode of treatment is altogether grounded upon this principle. Either, however, may become incidently connected with it from the peculiar state of the habit or some other cause. Hence, as a preventive, the bowels should be kept moderately open; and wherever there is any just apprehension of plethora, or a turgid state of the vessels, and particularly of the brain, blood should be drawn freely from the arm, and, if necessary, be repeated. We have already seen that such a state of congestion is sometimes produced even at the onset of the disease, and is so forcibly felt by the patient himself, that he earnestly intreats the medical attendant to bleed him. Such intreaty should, perhaps, never be urged in vain: but the bleedings to deliquium, which have of late years been so strongly recommended, are a rash and dangerous practice, unfounded on analogy, and by no means rest on any sufficient assurance.

Fever, or inflammatory action, has sometimes associated:

and hence to be guarded against by gentle aperients: and sometimes by a free use of the lancet; especially when the patient intreats to be blooded from a sense of congestion.

Such, in the doubt and darkness that at present beset us, concerning the real physiology of lyssa, seems to be the safest and most promising path we can pursue, when called upon for aid in so afflictive a malady. Our best

Importance of intermediate process upon the infliction of the wound.

GEN. I. SPEC. VIII. Entasia Lyssa. Rabies. Treatment.

time for action, however, and almost the only time we can improve, is immediately on the infliction of the wound: a tight ligature above which, with the double precaution of excision and cauterization, may in general be regarded as an effectual preventive. I do not know, indeed, that the profession is acquainted with any other. It has, however, been proposed in France, to fight off the poison of lyssa by pre-occupying the ground with the poison of a viper, upon the principle of combating variolous with vaccine matter: and for this purpose it has been suggested that the part bitten by a mad dog should be again bitten a little below the wound, as soon as may be, by a venomous serpent, whose virus, from its greater activity, will, in most cases, be certain of taking the lead, and may, it is presumed, guard the constitution against any subsequent effects from the wound of the mad dog. I have not, however, heard that this proposal has ever been carried into effect, and the claim of ingenuity is, most probably, the whole it will ever have to receive.

Poison of viper proposed as an antidote to that of mad-dog.

Contagion of canine catarrh said to emancipate dogs from a power of generating rabies: but not of receiving it by contact.

I ought not, however, to conclude without noticing one very extraordinary fact in the economy of morbid poisons, and especially of that before us, which I have had confirmed by the testimony of several veterinary practitioners entitled to credit. It is, that no dog who has ever had the *distemper*, as it is called, which is the canine catarrh or influenza, has been known to become rabid spontaneously, though he is capable of receiving the disease by the bite of another dog. If this be true, for which however I cannot fully vouch, we have certainly another instance of morbid poisons mortally conflicting with each other; and it might be worth trying how far inoculation with the matter of canine catarrh might succeed in protecting a human subject after the infliction of a rabid bite; though in the dog, perhaps from a stronger predisposition to rabies, it seems to be impotent. In South America, rabies, as already observed, is altogether unknown, and I have hence been anxious to learn whether the distemper be unknown there also: and, in answer to this inquiry, it has been told me, by several intelligent resi-

Use to be made of this fact if true.

Collateral facts in support of it.

dents in that quarter, that this last disorder is so common and so fatal, that two-thirds of the dogs littered there perish of it while pups: a remark which still further confirms the home-report concerning its influence on rabies, and sufficiently explains the non-existence of the latter on the shores of the Plata.

Gen. I. Spec. VIII. Entasia Lyssa. Rabies. Treatment.

SPECIES IX.

ENTASIA ACROTISMUS.

Pulselessness.

FAILURE, OR CESSATION OF THE PULSE, OFTEN ACCOMPANIED WITH PAIN IN THE EPIGASTRIUM; THE PERCEPTION AND THE VOLUNTARY MUSCLES REMAINING UNDISTURBED.

Gen. I. Spec. IX. Origin of the specific term.

Acrotismus is literally "defect of pulse", from κρότος, "pulsus", with a privitive α prefixed: whence the technichal term *crotophus* or *crotophium*, importing "painful *pulsation* or throbbing in the temple". Asphyxia is the term employed for this disease by Ploucquet, and would have been used in the present arrangement but that it has been long appropriated to import suspended animation or apparent death; a total cessation, not of the pulse only, but of sense and voluntary motion.

Asphyxia sometimes used synonymously.

Failure of pulsation sometimes general, sometimes limited. Importing debility of the heart and arteries;

This failure or cessation of pulsation sometimes extends over the whole system, and is sometimes confined to particular parts. In every case it imports an irregularity in the action of the heart, or of the vessels that issue from it, and in most cases, an irregularity proceeding from local or general weakness, and dependent upon a spasmodic disposition hereby produced in the muscular tunic of the vessels. Of this last cause we have a clear

GEN. I. SPEC. IX. Entasia Acrotismus. Pulselessness.

proof in the universal chill and paleness that spread over the entire surface in the act of fainting or of death, to which fainting bears so striking a resemblance. Except, however, in the agony of dying, the spasmodic constriction for the most part soon subsides, and the arteries recover their proper freedom and diameter. Yet this is by no means the case always, for in violent hemorrhages, and especially hemorrhages of the womb, the rigidity has sometimes continued for several days, during the whole of which time the heart has seemed merely to palpitate, and there has been no pulse whatever. Morgagni relates, from Ramazini, a case of this kind which extended to four days. The patient was a young man of great strength and activity even during this suppression. The arteries were as pulseless as the heart: and, through the whole period he was quite cold to the touch, and without micturition. On the fourth day he died suddenly *. Examples indeed are by no means uncommon in which the spasm has existed for three †, four, or even five days ‡ before death.

and mostly connected with a spasmodic disposition.

Exemplified.

Other irritations than that of weakness are sometimes causes.

Other irritations, besides that of weakness, have occasionally led to a like spastic state of the arteries. The stimulus of an aneurism of the aorta has produced it in the brachial arteries, so that there has been no pulse in the wrists: and gout or some acrimony in the stomach has operated in like manner on the arterial system to a much greater extent: as has likewise general pressure on the larger thoracic or abdominal organs, from water in the chest or cavity of the peritoneum. The cause, however, is not always to be traced, and hence Marcellus Donatus has given an instance which he tells us was unaccompanied with any disease whatever §; the irritation probably having subsided. Berryatt, in the History of the Academy of Sciences, has furnished us with a very singular example of this disease which was general as well as chronic, and continued through the whole term of life.

Sometimes habitual after the irritation has subsided.

* De Sedibus et Causis Morb. Ep. XLVIII. Lugd. Bat. 4to. 1767.

† Pathology, p. 25. ‡ Pelargus, Med. Jahngange. Band. v. p. 23.

§ Lib. VI. cap. II. p. 620.

In all which cases, however, though the heart itself should seem to participate in the pulselessness, we are not to suppose that it is entirely without any alternation of systole and diastole, but only that its action is indistinct from weakness or irregularity. In treating of the nature of the pulse in the Physiological Proem to the third class, we observed that it is in some persons unusually slow, and has been found, as measured by the finger, not more than ten strokes in a minute *: and that in many of these cases the cause of retardation seems to be a spasticity or want of pliancy in the muscular fibres of the heart or arteries, or both, rather than an actual torpor which is also an occasional cause. I have never met with any case in which the ordinary standard of the pulse was not more than ten strokes in a minute; but I have at this time a patient of about thirty-six years of age, whose pulse has not exceeded twenty-four or twenty-six strokes, and has often been below these numbers. He is a captain in the Royal Navy, of a sallow complexion and bilious temperament; till of late he enjoyed good health, but about three years since was attacked with a fit of atonic apoplexy from which he recovered with difficulty. At an interval of a few weeks from each other, he had several other fits; on recovering from the last of which he instantly married a young lady to whom he had for some time been engaged. He has now been married about fifteen months, has a healthy infant just born, and has had no fit whatever. His spirits are good, and he is residing by the sea-side, which situation he finds agree with him best.

Gen. I. Spec. IX. Entasia Acrotismus. Pulselessness.

Hence has attended through the whole of a long life.

In all which cases the heart probably beats, though indistinctly.

Great retardation of the pulse not uncommon, sometimes amounting to only ten strokes in a minute.

Exemplified.

Dr. Latham gives a similar example in a merchant whose pulse, though never intermissive, seldom, for ten or twelve years that he had known him, exceeded thirty-two beats in a minute; occasionally was as slow as twenty-two, and at one time only seventeen. "I once", says Dr. Latham, "attended him through a regular fever, when his pulse was not more than sixty, notwithstanding the disease ran on for at least a fortnight with a hot and dry

Further illustration.

* Vol. II. p. 21.

GEN. I. SPEC. IX. Entasia Acrotismus. Pulselessness.

skin, white and furred and parched tongue, and occasional delirium." *

In these anomalies often a want of harmony in the stroke of different arteries.

In many of these anomalies there is not only no perceptible pulse or a very retarded one, but often intermissions more or less regular, and occasionally a want of harmony between the stroke in some of the arteries compared with that in others. Reil gives a case in which the heart, the carotids, and the radial arteries all pulsated differently †: and Beggi another, in which the acrotism, or want of pulsation, extended over the entire frame with the exception of the heart, which pulsated violently ‡.

Acrotism strikingly exemplified in J. Hunter as related in his life by Home.

This species is strikingly exemplified in the biographical sketch of Mr. J. Hunter, drawn up and prefixed to his volume on Blood and Inflammation by Sir Everard Home. Mr. Hunter for the four preceding years had annually suffered from a fit of the gout in the spring. In the year 1773, this did not return, and having, on a particular occasion, been greatly affected in his mind, "he was attacked", says Sir Everard Home, "at ten o'clock in the forenoon, with a pain in the stomach, about the pylorus: it was the sensation peculiar to those parts, and became so violent that he tried change of position to procure ease; he sat down, then walked, laid himself down on the carpet, then upon chairs, but could find no relief: he took a spoonful of tincture of rhubarb, with thirty drops of laudanum, but without the smallest benefit. While he was walking about the room he cast his eyes on the looking-glass, and observed his countenance to be pale, and his lips white, giving the appearance of a dead man. This alarmed him, and led him to feel for his pulse, but he found none in either arm. He now thought his complaint serious. Several physicians of his acquaintance, Dr. William Hunter, Sir George Baker, Dr. Huck Saunders, and Sir William Fordyce, all came but could find no pulse: the pain still continued, and he found him-

* Med. Trans. Vol. IV. Art. XX.

† Memorabilia Clinica. Vol. II. Fasc. I. 6. Hall. 1792.

‡ Opp. Pacchioni. Rom. 4to. 1741.

self at times, not breathing. Being afraid of death soon taking place if he did not breathe, he produced the voluntary act of breathing; his working his lungs by the power of the will, the sensitive principle with all its effects on the machine not being in the least affected by the complaint. In this state he continued for three quarters of an hour, in which time frequent attempts were made to feel the pulse but in vain. However, at last the pain lessened, and the pulse returned, although at first but faintly, and the involuntary breathing began to take place. While in this state he took Madeira, brandy, ginger, &c. but did not believe them of any service, as the return of health was very gradual. In two hours he was perfectly recovered." *

Gen. I. Spec. IX. Entasia Acrotismus. Pulselessness.

This is one of the most extraordinary cases on record, considering the extensive group of important functions that were jointly affected, and the total freedom of the rest: and nothing can more strikingly prove how close is the sympathy that in many instances prevails between discontinuous organs. The chief disease seems to have prevailed in the heart, the chief pain in the stomach on its upper side; and for this we may, perhaps, account, from a law of the animal economy we have so often of late had occasion to keep in view, by which a morbid action affecting one extremity of a nervous fibre, or bundle of fibres, is, under particular circumstances, most severely felt at the other extremity: for as one of the branches of the phrenic nerve passes over the apex of the heart, and is afterwards continued to the diaphragm which maintains so intimate an association with the stomach, it serves as a direct line of communication between each of these organs; and the painful impression imparted to the end of the nervous twig that rests on the heart may, by this law, be transferred to its other extremity that lies so contiguous to the upper part of the stomach.

This case highly extraordinary and strikingly elucidative of a close sympathy often prevailing between discontinuous organs.

Case explained.

The nature of the pain and the collateral symptoms

* Sir E. Home's Life of Mr. Hunter prefixed to the Treatise on Blood, &c. p. xlvi.

GEN. I. SPEC. IX. Entasia Acrotismus. Pulselessness.

seem sufficiently to show that this disease was of a spasmodic kind: for the deficiency of pulse was subsequent to, and consequent upon the pain, and ceased upon its removal, while the deadly paleness of the face gave proof of a constriction of the capillaries.

All such cases commonly connected with a diseased state of the larger arteries or viscera, and lead to sudden death.

So far as my own experience has extended, such failures of the pulse, whether consisting in a total suspension, or a preternatural retardation, and attended with acute or with very little pain, are dependent upon a diseased state of the larger arteries, or the larger viscera of the thorax or abdomen, and generally lead to sudden death. The case of the captain of the navy which I have just related and which was drawn up while the first edition of this work was in the press, I may now apply to, in illustration of this remark: for I have since been informed by his sister that while at Swansea, apparently in as good health as he had ordinarily enjoyed for several years, he was attacked with a fit of apoplexy which carried him off in less than an hour. Such, too, was the fate of Dr. Latham's patient, for we are told that "one day, when in complete health, as he then considered himself, he dropped down in the street and expired." And so sudden was the decease of Mr. J. Hunter, that feeling himself unwell while in the course of his professional attendance at St. George's Hospital, he went into an adjoining room, gave a deep groan, and dropped down dead.

Exemplified.

Mode of treatment,

In all cases of this kind, therefore, the mode of treatment must depend upon the nature of the exciting or predisponent cause as far as we are able to ascertain it.

where the disease is constitutional.

Where the cause is constitutional, a sober, quiet, and regular habit of life, with a due attention to the ingesta and egesta, and particularly to a tranquillized state of mind, will often enable the valetudinarian to reach his threescore and tenth year, with cheerfulness and comfort: but he must content himself with

—— the cool sequestered vale of life,

and not form a party in its contentions, and its glitter, its bustle and "busy hum".

Where the affection appears to be dependent upon a particular state of any one of the larger thoracic, or abdominal organs, as the heart itself, the lungs, the stomach or the liver, our attention must be specially directed to the nature of the primary disease. And in these cases it is often essentially relieved by some vicarious irritation, as a seton or issue, a regular fit of the gout, a cutaneous eruption, or a painful attack of piles. During the paroxysm itself, the most powerful and diffusive stimulants should be had recourse to, as brandy, the aromatic spirit of ammonia, or of ether, which is still better, and opium in any of its forms.

Gen. I. Spec. IX. Entasia Acrotismus. Pulselessness. When dependent upon a diseased state of some one of the larger organs.

Some persons are said to possess a natural power of thus keeping the heart upon a full stretch, and hereby producing an universal deficiency of pulsation, and of simulating death. Dr. Cleghorne, and Dr. Cheyne both give an instance of this. It should be observed, however, that the individual in either case died suddenly: and one of them, Colonel Townshend, within a few hours, after having maintained this rigidity of the heart for half an hour, at the expiration of which time he consented to resuscitate himself, and awoke from the apparent sleep of death. It should hence seem that the natural energy of the heart sinks gradually or abruptly beneath the mischievous exertion wherever such a power is found to exist.

Sometimes produced spontaneously.

GENUS II.

CLONUS.

Clonic Spasm.

FORCIBLE AGITATION OF ONE OR MORE MUSCLES IN SUDDEN AND IRREGULAR SNATCHES.

GEN. II. Origin of the generic term.

Synonyms.

THE Greek terms, κλόνος and κλόνησις, import "agitation, commotion, concussion." The clonic, or agitatory spasms form two distinct orders in Sauvages, and a single genus in Parr. The first is unnecessarily diffuse; the second is too restricted. The two orders of Sauvages are in the present arrangement reduced to two genera, and constitute that immediately before us, and SYNCLONUS, or that which immediately follows. Dr. Cullen seems at one time to have had a desire of distinguishing the diseases of both these genera by the name of convulsions; and of limiting the name of spasms to the permanent contractions or rigidities of the muscular fibres produced by spastic action, constituting the different species of the preceding genus. "I think it convenient", says he, in his First Lines, "to distinguish the terms of spasm and convulsion, by applying the former strictly to what has been called the tonic, and the latter to what has been called the clonic spasm." Yet the whole are treated of in his nosological arrangement under the common name of SPASMI, and even in his First Lines, notwithstanding this distinction, under that of "*spasmodic affections* without fever". These spasmodic affections are, indeed, subsequently divided into a new arrangement of "spasmodic affections of the animal functions;—of the vital;—and of the natural:" throughout which an attempt is still made to separate the term *convulsion* from that of *spasm*, and apply it to

Spasm and convulsion how distinguished by Cullen.

all clonic or agitatory motion of the muscles, while CONVULSIO is, nevertheless, retained in the Synopsis, as the technical name of that single species of disease which is colloquially called convulsion-fit, and not extended to any others. There is doubtless a difficulty in drawing the line between entastic and clonic spasm in many cases, from the mixed nature of the symptoms; but if it be felt of importance to take terms out of their general meaning, and tie them down to a stricter interpretation, such interpretation should be rigidly adhered to, or some degree of confusion must necessarily ensue.

Gen. II. Clonus. Clonic spasm.

To understand the real nature of the spasms we are now entering upon, it may be expedient to recollect that the nervous power or fluid appears to flow naturally, as indeed we have already observed in the Physiological Proem to the present class, by minute jets, or in an undulatory course, like the vibrations of a musical chord. But the movement is so uniform, and the supply so regular, in a state of health, and where there is no fatigue, that we are not conscious of any discontinuity of tenour, and can grasp as rigidly and as permanently with a muscle as if there were no relaxation in its flow of power. To prove the nature of the influx, however, nothing more is necessary than to reduce the muscle from a state of healthy tone to a state of languor, or to wear it down by fatigue; for in this condition all the muscles tremble, and the stoutest man is incapable of extending his arm with a small weight in his hand, or even of raising a glass of wine slowly to the mouth, without a manifest, and even a painful oscillation.

Physiological explanation of spasms. Natural flow of the nervous fluid, by jets:

but which do not impede a continuity of muscular action.

The flow of the nervous power, in a state of health, is augmented by the application of various stimulants both mental and corporeal. The ordinary mental stimulus is the will, but any other mental faculty when violently excited will answer the same purpose, though the action which takes place in consequence hereof, will, in some degree, be irregular, as proceeding from an irregular source, and will in consequence make an approach to the character of spasms; of which a violent excitement of

Natural flow augmented by various stimulants. Mental stimulants.

GEN. II. Clonus. Clonic spasm.

almost any of the passions affords examples sufficiently evident, and especially the passions of fear and anger, under the influence of which it is sometimes found impossible to keep a single limb still.

Corporeal stimulants.

The ordinary corporeal stimulants are the fluids which are naturally applied to the motory organs themselves. Thus the air we breathe becomes a sufficient excitement to the action of the lungs, the flow of the blood from the veins a sufficient excitement to that of the heart, while the descent of the feces maintains the peristaltic motion of the intestinal canal.

Where these stimulants are regularly administered, and the organs to which they are applied are in a state of health, the alternations of jets and pauses in the flow of the nervous power, as we have already remarked, are uniform. But in a state of diseased action, whether from a morbid secretion of the fluid, or a morbid condition of the fibres that are to be influenced by it, this uniformity is destroyed, and in two very different ways: for first, the nervous energy may rush forward with a force that prohibits all pause or relaxation whatever, and this too in spite of all the power of the will; and we have then a production of rigid or entastic spasms, or those abnormal contractions in different parts of the body of which the preceding genus furnishes us with abundant examples: and, next the pauses or relaxations may be too protracted; and in this case every movement will be performed with a manifest tremor. Where this last is the case, moreover, the succeeding jet, from the accumulation of nervous power that necessarily follows upon such a retardation, must at length take place with an inordinate force and hurry; and the movement in the voluntary muscles, when attempted to be controlled by the will, must be irregular and often strongly marked with agitation, giving us examples of convulsive or clonic spasm. And as, moreover, in such a state of the nervous system or of any part of it, there will often be found a contest between the retarding and the impelling powers; the spasm will not unfrequently partake of the nature of the

Uniformity of the flow of nervous fluid how interfered with.

Production of rigid or entastic spasm.

Production of convulsive or clonic spasm.

Mixture of both kinds how produced.

two, the nervous energy, after having been irregularly restrained in its course, will rush forward too impetuously, and for a few moments without any pause; and we shall have either a succession of constrictive and clonic spasms in the same muscle or sets of muscles, or a constrictive spasm in some parts, while we have a clonic spasm in others: and hence those violent and ramifying convulsions which we shall have more particularly to notice under the ensuing genus. Gen. II. Clonus. Clonic spasm.

A sudden and incidental application of any irritant power whatever, to any of the muscular fibres, will throw them into an irregular action not only in a morbid state, when they are most prone to such irregularities, but even in a state of health. Hence the involuntary jerk that takes place in all the limbs when a boat, in which we are sailing at full speed, gets a-ground without our expecting it, or we are assailed unawares with a smart stroke of electricity. Further illustrated.

Now, whenever a forcible and anomalous movement of this kind has once been excited in any chain of muscular fibres whatever, there is a strong tendency in them to repeat the same movement even from the first: and when from accident or a continuance of the exciting cause it has actually been repeated, it forms a habit of recurrence that is often broken off with great difficulty. Hence the convulsive spasm of the hooping-cough always outlasts the disease itself for some weeks, and is best removed by the introduction of some counter-habit obtained by a change of residence, atmosphere, and even hours. A palpitation of the heart first occasioned by fright, in an irritable frame, has in some cases continued for many days afterwards, and in a few instances become chronic. Tendency to a repetition of irregular action when once produced: hence established habits of recurrence exemplified in hooping-cough. In palpitation:

A habit of sneezing has sometimes been produced in the same manner, and has followed upon an obstinate catarrh; after which the slightest stimulants, even the sneezing of another person, has been sufficient to call up fresh paroxysms, and in some cases which I have seen, of very long and troublesome continuance. In sneezing.

Hiccough affords us another example of the same ten- In hiccough.

Gen. II. Clonus. Clonic spasm.

dency to a recurrence of muscular abnormities. This is usually produced by some irritation in the stomach, not unfrequently that of fulness alone: the irritation is by sympathy communicated to the diaphragm, which is thrown into a clonic spasm, and the spasm being a few times repeated, the series of hiccuping becomes so established, as, in many instances, to be broken through with considerable difficulty.

It is to these physiological laws that most of the affections we are now about to enter upon are referable; and the concentrated view we have thus taken of their operation, will render it less necessary for us to dwell at much length upon any of them.

The genus CLONUS comprises the six following species:

1.	CLONUS SINGULTUS.	HICCOUGH.
2.	——— STERNUTATIO.	SNEEZING.
3	——— PALPITATIO.	PALPITATION.
4.	——— NICTITATIO.	TWINKLING OF THE EYE-LIDS.
5.	——— SUBSULTUS.	TWITCHING OF THE TENDONS.
6.	——— PANDICULATIO.	STRETCHING.

SPECIES I.

CLONUS SINGULTUS.

Hiccough.

CONVULSIVE CATCH OF THE RESPIRATORY MUSCLES, WITH SONOROUS INSPIRATION; ITERATED AT SHORT INTERVALS.

Gen. II. Spec. I. Disease principally seated in the

THOUGH the spasmodic action in this affection exists chiefly in the diaphragm, the principal seat of the disease is the stomach, when strictly idiopathic; an obser-

vation which was long ago made by Hippocrates, and has in recent times been more copiously dwelt upon by Hoffman: but which Mr. Charles Bell has been the first to establish by experiments on the nervous system. "Vomiting", says he, "and hiccough, are actions of the respiratory muscles excited by irritation of the stomach."*

GEN. II. SPEC. I. Clonus Singultus. Hiccough. stomach when idiopathic.

Debility is perhaps the ordinary remote cause, and irritability, or some accidental stimulus, the exciting. Thus excess of food, and especially in a weak stomach, is often a sufficient stimulus: and hence the frequency of this complaint among infants.

Remote and exciting causes.

For the same reason it is occasionally produced by worms, acidity, or bile in the stomach. External pressure on the stomach is another exciting cause: and hence it has sometimes followed, on an incurvation of one or more of the ribs†, or of the ensiform cartilage‡ of the sternum produced by violence, and pressing on the coats of this organ. The stomach, however, is not at all times the only organ in which the morbid cause is seated that excites the diaphragm to this spasmodic action. The liver is frequently to be suspected. "I have often", says Dr. Percival, in his manuscript notes on the volume of Nosology, "found hiccough symptomatic of an enlargement or inflammation of the liver on the upper convex side." It also frequently follows upon strangulated hernia; and, according to Mr. John Hunter, in numerous instances accompanies local irritation after operations of various kinds. It has sometimes attended the passage of a stone in one of the ureters, and has continued through its entire course§.

Morbid cause sometimes seated in other organs than the stomach.

Exemplified.

The affection is often very troublesome, but it cures itself in ordinary cases, and where the exciting cause is lodged in the stomach; for the spasmodic action very generally removes the accidental irritant; and if not, the

Spasm often cures itself or is easily restrained.

* Experiments on the Structure and Functions of the Nerves. Phil. Trans. 1821, p. 406.

† Schenck, Lib. III. Obs. 49. ex Fernelio.

‡ Bonet. Sepulchr. Lib. III. Sect. v. Obs. 8. Appex.

§ Darwin, Zoonom. IV. I. 7.

GEN. II. SPEC. I. Clonus Singultus. Hiccough.

disorder usually yields to very simple antispasmodics, as a draught of cold water, or a dose of camphor or volatile spirits. Where these have failed, a nervous action of a different kind, and which seems to operate by revulsion, has often been found to succeed, such as holding the breath, and thus producing a voluntary spasm of a rigid and opposite kind in the diaphragm; or a violent fit of sneezing. An emetic* will sometimes answer the purpose; and still more effectually, a sudden fright, or other emotion of the mind†. If these do not prove sufficient, we must call in the aid of opium: and in the intervals have recourse to tonics internal and external, the warm bitters, bark, pure air, exercise, and cold bathing.

How to be treated where common means fail.

We have already pointed out the tendency which these irregular actions have to form a habit, and the more so in proportion to the general weakness and irritability of the frame; and hence, indeed, their arising so readily in the later stages of typhus and other low fevers, and their continuing to the last ebb of the living power.

Hiccough of typhus and other low fevers.

Even where the constitution is possessed of a tolerable share of vigour, hiccough is too apt to become a chronic and periodical affection; and as the frequency of the spasm is also usually increased with the frequency of the series, it has sometimes become almost incessant, and defied every kind of medical treatment that could be devised. As a chronic affection it has been known to return at irregular periods from four‡ to four and twenty years§; and as a permanent attack to continue without ceasing for eight‖, nine¶, twelve days**, and even three months††. Dr. Parr tells us that he once knew it continue for a month with scarcely any intermission even at night. "The sleep", says he, "was at last so profound

Chronic hiccough.

Singular examples.

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* Rigaud, Ergo solvunt Singultum Vomitus et Sternutatio? Paris 1601.

† Riedlin, Lin. Med. 1696, p. 276.

‡ Bartholin, Hist. Nat. Cent. II. Hist. 4.

§ Alberti, Diss. Casus Singultûs chronici viginti quatuor annorum. Hal. 1743.

‖ Riedlin, Cent. I. Obs. 15. ¶ Act. Nat. Cur. Vol. V. Obs. 108.

** Tulpius, Lib. IV. cap. 25. †† Schenck, Lib. III. Obs. 49. ex Fernelio.

that the convulsion scarcely awoke the patient." In a few instances it has proved fatal. Poterius mentions one*: and another, produced by cold beverage, occurs in the Ephemerides of Natural Curiosities†.

Gen. II. Spec. I. Clonus Singultus. Hiccough.

In the Gazette de Santé for 1817, is the case of a young girl who had been tormented for six months with an almost incessant hiccough. It ceased during deglutition, but re-appeared immediately afterwards. The sleep was frequently disturbed. M. Dupuytren, on being consulted, after antispasmodics and the warm-bath had failed, applied an actual cautery to the region of the diaphragm, and the hiccough immediately ceased; but perhaps terror operated in no slight degree in this mode of cure.

SPECIES II.

CLONUS STERNUTATIO.

Sneezing.

IRRITATION OF THE NOSTRILS, PRODUCING SUDDEN, VIOLENT, AND SONOROUS EXPIRATION THROUGH THEIR CHANNEL.

Gen. II. Spec. II. Pathology.

Sneezing is a convulsive motion of the respiratory muscles, commonly excited into action by some irritant applied to the inner membrane of the nose; in the course of which the air from the lungs is sonorously forced forward in this direction as the lower jaw is closed at the time. "In sneezing", says Dr. Young, "the soft palate seems to be the valve which, like the glottis in coughing, is suddenly opened, and allows the air to rush on with a greater velocity than it could have acquired without such an obstruction."‡

Has sometimes become a serious disorder.

It is a common and rarely a severe affection in its ordinary course. But from the habit which irregular ac-

* Cent. II. Obs. xxvii. † Eph. Nat. Cur. Dec. III. An. i. Obs. 48.

‡ Med. Literat. p. 107.

Gen. II. Spec. II. Clonus Sternutatio. Sneezing.

tions of the irritable fibres are perpetually apt to assume, as we have already explained, and particularly in a relaxed and mobile state of them, sneezing has occasionally become a serious complaint. Forestus, Horstius, Lancini, and many of the German medical miscellaneous collections, give instances of its having been sometimes both permanent and violent; sometimes periodical; and a few cases wherein it proved fatal; which last termination is confirmed by Morgagni. The Ephemerides Naturæ Curiosorum contain one instance in which the sneezings continued for three hundred times in a single paroxysm.

Ordinary causes.

The ordinary irritants operating immediately on the Schneiderian membrane or that which lines the interior of the nostrils, are sternutatories, a sharp pungent atmosphere, indurated mucus, the acrimonious fluid secreted in a catarrh or measles, or a morbid sensibility of the Schneiderian membrane itself. But the severest cases have usually been produced by sympathy with some remote organ, as an irritable state of the lungs, stomach, or bowels. For the same reason sneezing often accompanies pregnancy and injuries on the head, and sometimes the last stages of low fevers; and is reported to have proved a sequel to repelled itch. The benediction formerly bestowed with so much courtesy on the act of sneezing is said to have been congratulatory on account of its frequent violence: but we do not seem to be acquainted with the real origin of this custom.

But when severe, usually produced by sympathy with some remote and diseased organ.

Origin of the benediction formerly bestowed on sneezing.

Tendency in sneezing to call into action other morbid movements formerly associated with it.

As sneezing is a symptom of catarrh, if it be repeated for some time with quick succession in an irritable habit that has been frequently affected with catarrh, it will sometimes, in the most singular manner, call sympathetically into action the whole circle of symptoms with which it has formerly been associated, and the patient will seem at once to be labouring under a very severe cold. An instance of this singular sympathy has occurred to me while writing. The patient is a lady of about fifty years of age, in good health, but of a highly nervous temperament. She began to sneeze from some trifling and transient cause, and having continued to sneeze for

Illustrated.

five or six times in rapid succession, her eye-lids became swollen, her eyes blood-shot, and full of tears, her nostrils discharged a large quantity of acrid serum, her fauces were swollen and irritable, and a tickling and irrepressible cough completed the chain of morbid action. The sneezing at length ceased, and, within a quarter of an hour afterwards, the whole tribe of sympathetic symptoms ceased also.

Gen. II. Spec. II. Clonus Sternutatio. Sneezing.

Sneezing in its ordinary production, though a convulsive, is a natural and healthy action, intended to throw off instinctively from the delicate membrane of the nostrils, whatever irritable or offensive material may chance to be lodged there. But when it proceeds from a morbid cause, or becomes troublesome from habit, we should use our endeavours to remove it.

Naturally a healthy action, but sometimes troublesome and severe from habit, and requires removal.

When the complaint is idiopathic and acute, or, in other words, when the Schneiderian membrane is morbidly sensible, or stung with some irritant material, it may be relieved by copiously sniffing warm water up the nostrils, or throwing it up gently with a syringe, or forcing up pellets of lint moistened with opium dissolved in warm water, the pressure of which is sometimes of as much service as the sedative power of the fluid itself. If this do not succeed, leeches or cold epithems should be applied to the nose externally. But a free and spontaneous epistaxis, or hemorrhage from the nostrils, effects the best and speediest cure, of which Riedlin has given an instructive instance *. It has been prevented from returning by blisters to the temples and behind the ears, and frequently sniffing up cold water in the course of the day. It has also been attempted to be cured by pungent sternutatories, so that the olfactory nerves may be rendered torpid and even paralyzed by over exertion; but this has rarely answered: for when once a morbid habit is established, it does not require the primary cause or stimulus for its continuance.

Remedial treatment in such cases.

When the complaint proceeds from sympathy, the

How to be palliated when the

* Lin. Med. 1695. p. 148.

GEN. II. SPEC. II. Clonus Sternutatio. Sneezing.

most effectual mean of removing it is by ascertaining the state of the remote organ with which it associates, and removing the stimulus that gives rise to it. This, however, cannot always be done; and in such cases camphor in free doses will often prove a good palliative, and if this do not succeed, we must have recourse to opium.

affection is sympathetic.

SPECIES III.

CLONUS PALPITATIO.

Palpitation.

SUBSULTORY VIBRATION OF THE HEART OR ARTERIES.

GEN. II. SPEC. III. Discrepant interpretations of different nosologists.

PALMUS or PALPITATIO is used in very different senses by different writers. By Cullen and Parr it is limited to a vehement and irregular motion of the heart alone. By Sauvages and Sagar it is applied to an irregular motion "in the region of the heart". By Linnéus it is denominated "a subsultory motion of the heart or a bowel —cordis viscerisve"; and by Vogel is defined "a temporary agitation of the heart, a bowel, a muscle, a tendon, or an artery."

Sometimes too contracted:

The first of these views is too contracted, for palpitations or quick abnormal beats are felt almost as frequently in many other organs, and particularly those of the epigastric region. Yet as in these it seems in every instance, however complicated with other symptoms, to depend upon a morbid state of the heart itself, or of the arteries which supply them, or are in their vicinity, the definitions that extend palpitations to other organs than the heart and arteries, as separate from these, appear to be as much too loose and out of bounds as the first definition is too limited.

sometimes too broad,

The view now offered takes a middle course: it con-

templates palpitation as dependent on a diseased action of the heart alone, or of the larger arteries alone, or of the one or the other associating with some organ more or less remote: and hence lays a foundation for the three following varieties:

Gen. H. Spec. III. Clonus Palpitatio. Palpitation.

α Cordis.	Palpitation of the heart.
β Arteriosa.	Palpitation of the arteries.
γ Complicata.	Complicated or visceral palpitation.

α C. Palpitatio cordis. Palpitation of the heart.

The vibratory and irregular action, which we denominate PALPITATION OF THE HEART, is sometimes sharp and strong, in which case it is called a THROBBING OF THE HEART, and sometimes soft and feeble, when it is called a FLUTTERING of this organ. Both may possibly proceed from two distinct causes; the one a morbid irritability of its muscular fibres, or some sudden stimulus applied to it, either external or internal, by which its systole becomes harsh and unpliant, and evinces a tendency to a spastic fixation; and the other an irregular motion of the entire organ of the heart in the pericardium, by which it literally strikes against the chest: the cause of which we do not always know, though we see it very frequently occasioned by a sudden and violent emotion of the mind, and have reason to believe that it is often a result of the spastic systole or contraction of the heart which we have just noticed. When, however, the substance of the heart is thus irregularly acted upon, and jerked backward and forward from a cause extrinsic to itself, the palpitation is confined to the pericardium, and the pulse does not partake of the abnormity.

Throbbing: fluttering.

Both producible by two causes: systole harsh and unpliant:

and an irregular motion of the organ of the heart in the pericardium:

The last is, perhaps, the most common proximate cause of the palpitation of this organ, and we are indebted to Dr. William Hunter for having first pointed it out to us. The heart, in its natural state, lies loose and pendulous in the pericardium: and when the blood which it receives is, from an irritation of any kind, thrown with a peculiar jirk into the aorta, the moment it reaches the curvature of this trunk it encounters so strong a resistance as to produce a very powerful rebound in conse-

as first pointed out by Dr. W. Hunter. Illustrated.

GEN. II. SPEC. III. α C. Palpitatio cordis. Palpitation of the heart.

quence of the aorta being the first point against the spine: the influence of the heart's own action is now, therefore, thrown back upon itself, and this organ, as a result of its being loose and pendulous, is tilted forward against the inside of the chest, between the fifth and sixth ribs on the left *.

Rebound sometimes so strong as to be heard,

The rebound of so strong a muscle as the heart against the inside of the chest must depend for its violence upon the violence of the jerk with which the blood is spasmodically thrown into the aorta; and this has often been so powerful as to be distinctly heard by by-standers †. Castellus has given an example of this sonorous effect: and Mr. Dundas has observed it in various cases. "The action of the heart", says the latter, "is sometimes so very strong as to be distinctly heard, and to agitate the bed the patient is in so violently, that his pulse has been counted by looking at the motions of the curtain of the bed "‡. I have already observed, under the genus PAROPSIS, that the point of a knife when introduced into the cornea, for the extraction of a cataract, has occasionally been broken off by a spasm of the muscles of the eye. And we shall hence hear with less wonder that the heart has sometimes palpitated with a force so violent as to dislocate § or break the ribs ‖, for both are stated to have occurred on respectable authorities, and, in one instance, to rupture its own ventricles ¶. Upon the wonderful power of the soft parts, or rather of the muscles over the bones, when thrown into vehement spasmodic action, we had occasion to observe in the Physiological Proem to the present order: and it is hence that we have sometimes had examples of the humerus, and other long bones, being broken by a convulsion-fit. A contrac-

and agitate the bed-clothes.

Has sometimes dislocated or fractured the ribs; and ruptured its own ventricles.

* See J. Hunter on Blood, p. 146. note.

† Castellus, P. Vascus. Exercitat. ad affectus Thoracis. Tr. IX. Toloso. 1614. 4to. Lettsom, Med. Soc. Lond. Vol. I. A Vega, De Art. Med. Lib. III. Cap. 8.

‡ Trans. Medico-Chirurg. Soc. I. 27.

§ Horstii II. 137—139.

‖ Schenck, Observ. 215. ex Fernelio.

¶ Portal, Mémoires de Paris, 1784.

Gen. II. Spec. III. a C. Palpitatio cordis. Palpitation of the heart.

tion of the left aurico-ventricular opening is sometimes found to produce the phænomenon of a double pulse *.

I have said that we are not always acquainted with the remote or exciting causes of the palpitation of the heart. Violent emotion of the mind, as already observed, is a frequent excitement, and one or two others have been already indicated †. The first of these is perhaps the most frequent cause; and hence we can readily admit with M. Corvisart that palpitation, together with many other diseases of the heart, have been far more frequent in France, since the commencement of its late horrible revolution. M. Portal has, indeed, proved this fact by various interesting examples; from which the following may be selected as it is short. A young lady who had suddenly learned that her husband had been cruelly murered by a band of the popular ruffians, was instantly seized with a violent palpitation that terminated in a syncope so extreme that she was supposed to be dead. This apprehension, however, was erroneous. She recovered; but the palpitation continued for many years: and she at length died of water in her chest †.

Striking example of the first.

Remote causes; chiefly consist in a morbid structure of the heart.

Exemplified.

The remote causes are rarely to be discovered till after death, and for the most part seem to consist in a morbid structure of the heart itself, or the pericardium, by which last the muscular walls of the heart have either been obstructed in their play, or have had too much liberty of action. The heart has sometimes been found ossified in its general substance, as in the case of Pope Urban the VIIIth; and more frequently in its valvules or its connexion with the aorta. It has sometimes been thickened and has grown to an enormous size, which change of structure has lately been distinguished by the name of hypertrophy, and has been found in one instance of a weight of not less than fourteen pounds ‡. A case occurred to

* Hodgson on the Diseases of Arteries and Veins.

† Mémoires sur la Nature et le Traitement de plusieurs Maladies. Tom. IV. 8vo. Paris 1819.

‡ Eph. Nat. Cur. Dec. III. Ann. III. Obs. 166.

GEN. II. SPEC. III. α C. Palpitatio cordis. Palpitation of the heart.

the present author not long ago in a young lady of fourteen, in whom it reached half this weight, and was the cause of a most distressing palpitation, as well as of a general dropsy. By close confinement and quiet, and the use of elaterium and scarification to carry off the water, she recovered an apparently good share of health; but the exercise of dancing, a few months afterwards, produced a recurrence of all the symptoms in a more violent and obstinate degree, and she gradually fell a sacrifice to them.

Other causes occasionally to be met with.

In other cases the heart has been peculiarly small and contracted, chiefly, perhaps, in the disease of tabes, or marasmus; and consequently there has not been a sufficient capacity for the regular influx of venous blood.

The space of the pericardium has often been morbidly diminished by inflammation, or an undue growth of fat; and hence, again, the heart has been impeded in its proper action; while occasionally it seems to have been filled, or nearly so, with a dropsical fluid.

Organic injury. Yet often severe lesion without affecting the life.

Organic injury from external violence is also a frequent cause of palpitation. Yet it is singular to observe the severity of lesion the heart and its appendages will sometimes yield to, when the constitution is sound, without affecting the life.

Exemplified.

M. Latour who, during the French war, was first physician to the Grand Duke of Berg, attended a soldier who laboured under a tremendous hemorrhage from the breast, produced by a wound from a musket that had penetrated this organ. The hemorrhage, however, ceased on the third day, the patient's strength gradually recruited, and suppuration proceeded kindly. It was nevertheless necessary to cut several pieces of fractured rib away; yet the wound cicatrized at the end of three months, and the only inconvenience that remained was a very troublesome palpitation of the breast that annoyed him for three years. Six years after the accident he died of a complaint totally unconnected with the wound. His body, however, was opened by M. Mausion, chief surgeon of the hospital at Orleans: and the ball which had entered his breast was found lodging in

the right ventricle of the heart, covered over in a great measure by the pericardium, and resting on the septum medium*.

Gen. II. Spec. III. a C. Palpitatio cordis. Palpitation of the heart.

To these causes may be added a scirrhous or other morbid structure of the lungs, and, perhaps, of the spleen, liver, stomach, or intestinal canal; for it is a frequent accompaniment upon most species of parabysma: and in these cases appears as a symptomatic affection alone. For reasons already assigned it is also an occasional symptom in hydrothorax: during which it shows itself in a very violent degree upon mental agitation, especially that produced by fright or vehement rage.

The real cause often misunderstood: and the disease recovered from unexpectedly.

We should not, however, be hasty in deciding upon any structural affection of the heart, or of any of the larger organs that closely associate with it, nor in reality upon any incurable cause whatever. For it has not unfrequently happened that a palpitation of long standing, and which has been regarded as of a dangerous kind, has gradually gone away of its own accord, and left us altogether in the dark. Dr. Cullen gives a confirmation of this remark in the following very instructive case: "A gentleman pretty well advanced in life, was frequently attacked with palpitations of his heart, which, by degrees, increased both in frequency and violence, and thus continued for two or three years. As the patient was a man of the profession he was visited by many physicians, who were very unanimously of opinion that the disease depended upon an organic affection of the heart, and considered it as absolutely incurable. The disease, however, after some years, gradually abated both in its frequency and violence, and at length ceased altogether; and since that time, for the space of seven or eight years, the gentleman has remained in perfect health, without the slightest symptom of his former complaint."† A case precisely similar, and in a professional gentleman somewhat beyond the middle of life also, has occurred to the present au-

Exemplified from Cullen.

Confirmed by the author's practice.

* Dict. des Sciences Médicales, Art. Cas. Rares.

† Mat. Med. Part. II. Chap. VIII. p. 357.

GEN. II. SPEC. III. α C. Palpitatio cordis. Palpitation of the heart.

thor, with a spontaneous termination equally as favourable. M. Laennec's ingenious method of MEDIATE AUSCULTATION by the stethoscope, as we have already explained, will often be found of great importance in the different forms of this species of disease *.

β C. Palpitatio arteriosa. Palpitation of the arteries.

The same alternating spasmodic motion into which the muscular substance of the heart is occasionally thrown by one or other of the causes thus glanced at, seems, at times, to take place in some of the LARGER ARTERIES, and extends to a greater or less length in proportion to the nature of the cause or the extent of the morbid irritability by which they are affected, producing the SECOND VARIETY before us. That a morbid irritability may exist in a part of an artery while the rest is free from any such condition is easy to be conceived, since a like partial irritability is often found to exist in organs in which we are capable of tracing it in the most manifest manner. Yet even in arteries themselves we can sometimes ascertain the same to the conviction of our senses; as for example in the case of phlegmonous inflammation; in which, also, we find it accompanied with the throb or alternating spasm and relaxation which constitutes what is meant by palpitation. In a healthy and ordinary flow of the blood through the arteries it is very well known that there is no sensible series of contractions and dilatations whatever; and we have already observed in the Physiological Proem to the third class that there is no actual change of bulk of any kind, and that it is the pressure of the finger or of some other substance against the side of an artery that alone produces a feeling of pulsation. In a phlegmonous inflammation, however, every one is sensible of a considerable change in this respect; for there is often a very smart and vibratory pulsation while the affected part is in perfect freedom, and no finger is applied to it: and that this is a pulsation unconnected with the regular pulsation of the heart is perfectly clear, because it is fre-

Existence of topical irritability in an artery easy to be conceived from analogous facts.

Yet sometimes capable of full proof, as in phlegmonous inflammation.

In an ordinary flow of the blood through the arteries no alternate change of the diameter in the latter.

In phlegmonous inflammation such alternate change manifest by the throbbing: which cannot be derived from the action of the heart.

* See Vol. III. Cl. III. Ord. IV. Gen. III. Spec. V.

quently less uniform, rarely, if ever, synchronous with it, and, in most instances, twice as rapid. We have here, therefore, a full proof of a local excess of irritability in an arterial tube, and of a palpitation, or alternating spasm and relaxation, as its effect.

GEN. II. SPEC. III. β C. Palpitatio arteriosa. Palpitation of the arteries.

Yet inflammation is but one cause of such subsultory action, or of the irritability which gives rise to it. With other causes we are not much acquainted; but we have reason to believe them very numerous, and wherever they exist, the artery operated upon will evince the same kind of vibratory throb, though, in general, the stroke will not be found quite so smart as that which takes place in the pulse of a phlegmon. It may appear singular that this abnormal action, whether of the heart or arteries, should evince so much punctuality in its vibration; but there is often a wonderful tendency to punctuality in all intermissive affections whatever. We see it in hemorrhoidal discharges, in gout, and above all, in intermitting fevers: and till the cause of such punctuality is explained in this last instance, it will be in vain to expect an explanation in the case before us.

Inflammation only one cause of this subsultory action: others numerous and as active.

The punctuality of this abnormal action whence derived.

In very irritable habits, or, perhaps, where there is a morbid sensibility through the whole of the sanguiferous system, the palpitation will not unfrequently shoot from one artery to another; and one or two cases are given in the Ephemerides of Natural Curiosities*, in which it appears to have been universal. It was so, indeed, in the very irritable organization of that singularly constituted character J. J. Rousseau, if we may credit the account he gives of himself in relation to this subject: for he tells us that, after a peculiar paroxysm of high corporeal excitement, he became, all of a sudden, sensible of a pulsation in every part of his body, which from this time accompanied him without intermission: and he adds, somewhat extravagantly, that the throbbing was so distinct and strong, that he was often capable of hearing as well as feeling it.

Palpitation sometimes shoots from artery to artery:

and has been found universal.

How far exemplified in J. J. Rousseau.

* Eph. Nat. Cur. Dec. I. Ann. VI—VII.

Gen. II. Spec. III. β C. Palpitatio arteriosa.

Palpitation of the arteries.

Palpitation or throbbing of the temporal arteries, and the carotid.

The temporal arteries are peculiarly apt to concur in this migratory throbbing, and occasionally the carotid; and the throbbing of both is sometimes synchronous with that of the heart, and sometimes successive to it. Mr. Dundas has observed that this affection of the carotids is most common to persons in the prime of life; and that, on dissection, the heart is often found enlarged in its size, but without any increase of muscular power; an assertion collaterally supported by the case of the young lady described under the preceding variety. We here also, sometimes meet with polypous concretions, and very generally adhesions to the pericardium.

Chain of morbid action often singular.

Illustrated.

And it is highly curious and interesting to notice the ramifying chain of morbid action of which the heart sometimes forms the first link. I had lately a lady under my care, of delicate constitution and highly nervous habit, in the third month of pregnancy, who had for several weeks past been uniformly attacked in the evening with a violent palpitation in the heart, that continued for nearly an hour or upwards; it was then transferred to the temples, which throbbed with as much violence and for as long a period of time; vertigo followed with a tendency to deliquium, immediately after which there was a general reaction in the system; the skin became heated and at first very dry; but the driness at length yielded to a gentle diaphoresis, which concluded the morbid series; for the patient, at that time becoming tranquil, dropped into a sound and refreshing sleep, and woke free from all these symptoms in the morning.

In this case, also, there was a considerable tendency to that universal subsultus or alternating spasm of the arterial system to which we have just adverted: for all the arteries of the extremities pulsated or palpitated whenever accidentally pressed upon by any substance, though it required this additional stimulus to excite the spasmodic action.

Palpitation in the epigastric region.

Arterial palpitation, however, is to be found, though not more frequently, still far more alarmingly in the epigastric region than in the head; and appears to proceed

from some particular excitement of the aorta, the superior mesenteric, or some branch of the cœliac artery. Its beat has here some resemblance to that of an aneurism of these vessels, and has often been pronounced to be such without the slightest foundation, to the great terror of the patient, and consequently to a considerable exacerbation of the disease. It may, for the most part, be easily distinguished from an aneurism by being destitute of any circumscribed pulsatory tumour, that can be ascertained by a pressure of the finger; by a smarter vibration in the arterial stroke; and by that degree of irregularity in the return of the stroke by which palpitation is distinguished from pulsation. In some cases, indeed, the line of the affected artery can be distinctly felt and followed up to a considerable length; and the vibration has occasionally been so strong as to be visible to the eye, even at some distance, when the surface of the epigastric region has been exposed to view. "From a good deal of experience upon this subject," says Dr. Baillie, "I am enabled to say that the increased pulsation of the aorta in the epigastric region, very rarely depends upon any disease of the aorta itself, or of its large branches in that place; and that this occurrence is almost constantly of very little importance."* This distinguished physiologist tells us, further, that he has had an opportunity of examining the state of the arteries in the epigastric region after death, in two persons who had this pulsation very strongly marked, and who died from other diseases. In both cases all the arteries were perfectly free from every appearance of diseased structure. He was, also, some years ago, consulted by an old man upon a paralytic affection; who afterwards spoke to him incidentally concerning a palpitation of the kind before us, to which he had been subject for upwards of twenty-five years. The throb, on examination, was distinctly to be felt; and on the patient's first perceiving it, and applying to Sir Cæsar Hawkins, Mr. Bromfield, and Dr. Hunter, the two former had declared

Gen. II. Spec. III. β C. Palpitatio arteriosa.

Palpitation of the arteries.

Sometimes resembling an aneurism.

How distinguishable.

Illustrated from Baillie.

Often independent of any disease whatever in the aorta.

* Med. Trans. IV. XIX.

GEN. II. SPEC. III. β C. Palpitatio arteriosa. Palpitation of the arteries.

it to be an aneurism, while the latter, more modestly, confessed that he did not know what it was.

Dr. Baillie, in the article now alluded to, has imitated the modesty of Dr. Hunter. "It is, perhaps, difficult", says he, "to ascertain, in many instances, the causes of this increased pulsation of the aorta in the epigastric region: but in most cases it will be found to be connected with an imperfect digestion, and an irritable constitution." And hence, whatever may improve the digestion, and render the constitution less irritable, will be of use in mitigating the complaint: and, above all, it will be found highly serviceable to remove the patient's anxiety on the subject, whenever it can fairly be done. It is here that M. Laennec's stethoscope may be employed as a valuable diagnostic, and will often enable us, better than any other means, to ascertain the real nature of the malady; for an account of which the reader may turn to the remarks on phthisis*.

Hence the cause often difficult to be ascertained: but mostly connected with dyspepsy.

Advantage of the stethoscope.

γ C. Palpitatio complicata. Complicated palpitation.

But the throbbing or pulsatory motion is often communicated to other organs than the sanguiferous vessels, and forms that variety of affection to which we have given the name of COMPLICATED PALPITATION. This is clearly dependent, in many cases, upon the vicinity or close connexion of such organs with the heart or arteries that form the seat of disease; and it may also in other cases be produced, as ingeniously conjectured by Dr. Young, by an accumulation of fluid in the pericardium or thorax, which transmits a pulsatory motion from the heart itself to whatever other organ or surface of a cavity such fluid may reach; in the same manner as the fluctuation produced by a slight blow given to one side of the abdomen, when distended with water, is distinctly propagated to the opposite side. In the case of a middle-aged woman, of a rheumatic habit, labouring under symptoms of general dropsy†, "a palpitation", he tells us, "was observed in the right hypochondriac region, and on the right side of the neck, which exhibited a vibratory

Mostly produced by the vicinity of such organs to the heart or large trunks of arteries:

Sometimes perhaps by the fluctuation of a fluid accumulated in cavities operated upon by a palpitation of the heart or arteries. Illustrated from Young.

* Vol. III. Cl. III. Ord. IV. Gen. III. Spec. V.

† Med. Trans. Vol. V. Art. XVII.

motion more rapid and less regular than that of the pulse felt at the wrist; and a similar vibration was observable in the heart itself: the pulsation in the neck was not confined to the jugular veins; it was more forcible and extensive than it could have been if it had originated from those vessels; and it had more the appearance of a violent throbbing of the carotid artery; although in the axillary artery the pulse was comparatively regular and natural." Dr. Young found, nevertheless, upon making a strong pressure on the right side of the neck with a single finger, that the motion of the carotid artery was very perceptible, and totally independent of that of the superficial parts, being precisely synchronous with the pulse at the wrist, although it required considerable attention to distinguish it from the more irregular palpitation. The symptoms, however, of a dropsy of the chest or pericardium in this patient appear to have been obscure; and at the time when the general hydropic enlargement, which had been much reduced in the course of the autumn, began to increase towards the end of October, the palpitation was considerably less, as well as the pulsations in the abdomen and neck, though the motion of the heart was still fluttering, the pulse at eighty, intermitting and very irregular. On the death of the patient, which occurred soon afterwards, a considerable quantity of fluid was found in the pericardium, in the right cavity of the thorax, and in the ventricles of the brain, but little or none on the left side of the chest: the heart was inconsiderably enlarged, and some of its valves, as also some of those of the pulmonary artery, which were much ossified, so that a free passage of the blood was impeded.

Gen. II. Spec. III. γ C. Palpitatio complicata. Complicated palpitation.

I have said that palpitation is sometimes dependent upon a morbid irritability of the sanguiferous system in general. In some instances, however, we find it rather dependent upon a morbid irritation and debility of the entire frame, and consequently connected with a very irregular performance of many or all the functions of the body. Of this highly complicated state of the dis-

Palpitation sometimes dependent upon a general irritability of the system.

Illustrated in Bateman.

GEN. II. SPEC. III. γ C. Palpitatio complicata. Complicated palpitation.

ease we have a striking example in Dr. Bateman's history of himself as given in one of the volumes of the Medico-Chirurgical Transactions *, which he ascribes to a poisonous action of mercury employed on his own person copiously in the form of an unguent to relieve an amaurosis of the right eye, and which seems to have produced something of the mercurial erethism described by Mr. John Pearson †, as taking place in some singular idiosyncrasies, already noticed by us under the head of Syphilis ‡. In this case the heart and arteries were equally subject to subsultory and violent motions, sometimes separately, and sometimes synchronously, but inaccordantly as to the number of the throbs in a given time, and almost perpetually accompanied with a most distressing sense of languor and sinking. There was also a very irksome cough, an occasional sense of constriction across the region of the diaphragm, and such a difficulty of respiration as to render an erect position at night imperatively necessary. Life was, in this case, unquestionably a forced state of being, and all the stimuli of the external senses and of the will seemed necessary to excite the sensorial organ to a secretion of vital fluid sufficient for the mere preservation of life. And, hence, during sleep, or as soon as these stimuli were cut off, there was such an increase of languor, irregular action of the heart, and sinking, as though in the act of dying, that it was at times necessary, notwithstanding the extreme drowsiness of the patient from a previous and long continued watchfulness, to interrupt the sleep every two minutes; since by this time or even sooner, the failure of the pulse and the appearance of the countenance indicated a supervening deliquium. The powers of the stomach, from the repeated paroxysms of the disease seem to have declined rapidly. Frequent

Subsultory motion of the heart and arteries sometimes synchronous, sometimes separate.

* Vol. IX. p. 227.

† Observations on the Effects of various Articles of the Materia Medica in Lues Venerea, ch. xii.

‡ Vol. III. Class III. Ord. IV. Gen. VII. Spec. I.

supplies of food and cordials, as spiced wine, appeared at first serviceable in warding off the languor; but at length nothing but fluids could be taken and retained without increasing the disturbed action of the heart. Yet so extreme was the sense of sinking and immediate dissolution, that, on one occasion after a quarter of an hour's sleep, air was importunately demanded, and three glasses of undiluted brandy were drank in five minutes, without much relief; and afterwards ammonia and ether repeated every ten minutes for two hours; when the paroxysm rapidly declined after a copious discharge of limpid urine. The disease continued a twelvemonth before the patient felt, in any essential degree, amended: and little benefit was derived from medicines of any kind. It is well known, however, that this acute pathologist, and excellent man, has since fallen a sacrifice to a return of the complaint.

Gen. II. Spec. III. 7 C. Palpitatio complicata. Complicated palpitation. Languor insupportable: and the most powerful stimulants unavailable.

In a disease produced by so great a diversity of causes, often obscure, and very generally complicated with other affections, it is impossible to lay down any one plan of treatment that will apply to every case. Our first endeavour should be to ascertain, as far as we may be able, whether the palpitation be idiopathic or symptomatic; and if the last, while we endeavour to palliate the present distress, our attention should chiefly be directed to the primary malady. If acrimony or any other morbid state of the stomach or bowels be suspected, this, as far as possible, should be removed; and if we have reason to suppose hydrothorax or any other kind of dropsy, the means hereafter to be recommended for this tribe of complaints should be resorted to from the first. In pregnancy, the disease will most probably cease upon a cessation of this state of body, and usually, indeed, ceases during the latter months, or after the period of quickening. And if it seem to be chiefly dependent upon a general irritability of the sanguiferous system, or of the whole constitution, the sedative antispasmodics, tonics, and especially the metallic, quiet of mind as well as of body, regular hours, light meals, pure air, and such exercise as agrees

No general plan of treatment.

Primary indication where the disease is symptomatic.

GEN. II. SPEC. III. Clonus Palpitatio. Palpitation.

best with the individual, will often prove of essential service and sometimes effect a radical cure.

Treatment.

Much of this plan will also be requisite where we have reason to apprehend some structural affection of the heart or larger blood-vessels: and when, from any incidental excitement the irritation is here more than ordinarily troublesome, recourse must be had to narcotics. Opium is by far the best where it agrees with the system: but its secondary effects are often very distressing, and we cannot employ it. In such cases we must find out, by trial, what is its best succedaneum: the hop, henbane, hemlock, and prussic acid, have all been essayed in their turn, and sometimes one has succeeded where the rest have all failed. But upon the whole the henbane has answered far better and more generally under the author's own hands; and in one or two instances of great obstinacy he has known it effect a perfect cure when all the rest had been tried in succession and had totally failed.

Indication where the disease is idiopathic or structural.

In Dr. Bateman's case, however, which was peculiarly severe and complicated, the henbane, though it seemed serviceable at first, taken in doses of from three to five grains of the extract every night, gradually lost its effect even when repeated three times a night in doses of five grains at a time. The tincture of hop, in doses of thirty drops every six hours, was next tried, but produced no other effect than a slight drowsiness. Musk seemed most successful in draughts of ten grains each; yet even this was of transient duration, and was abandoned as of no use. Where the palpitation is accompanied with a distressing tendency to deliquium I have occasionally relieved it by camphor pills, with the ammoniated tincture of valerian or the aromatic spirit of ether.

Disease has sometimes been carried off by other complaints.

The disease has occasionally been carried off by a sudden attack of some other complaint, as gout, herpes, diuresis, or the formation of an abscess: and hence, setons, and issues have been recommended, and have occasionally proved serviceable. Zacutus Lusitanus found the latter produce a radical cure in a palpitation of the heart which

be ascribed to the rapid healing of some chronic ulcers *. Schenck advises the wearing a bag of aromatics at the pit of the stomach †; and hence, perhaps, the origin of camphor-bags as a specific for irregularities of the heart of another kind.

Gen. III. Spec. II. Clonus Palpitatio. Palpitation. Treatment.

SPECIES IV.

CLONUS NICTITATIO.

Twinkling of the Eye-lids.

RAPID AND VIBRATORY MOTION OF THE EYE-LIDS.

Gen. II. Spec. IV. Common nictitation a natural action for useful purposes: especially for the purpose of supplying the cornea with moisture.

To a certain extent, twinkling or winking of the eyes is performed every minute without our thinking of it. It is a natural and instinctive action for the purpose of cleansing and moistening the eye-ball, and rendering it better fitted for vision. Dr. Darwin has some ingenious remarks upon this subject. "When the cornea", says he, "becomes too dry it becomes at the same time less transparent, which is owing to the pores of it being then too large; so that the particles of light are refracted by the edges of each pore instead of passing through it; in the same manner as light is refracted by passing near the edge of a knife. When these pores are filled with water, the cornea becomes again transparent." ‡ Moisture is, indeed, a frequent cause of transparency in various bodies; and hence, in dying people whose eye-lids are become torpid and do not nictitate, the cornea is sometimes so dry that its want of transparency is visible to bystanders. So when white paper is soaked in oil, and its

Advantage of such supply.

Illustrated.

* Prax. Hist. Lib. VIII. Obs. 30.
† Lib. II. Obs. 216.
‡ Zoonom. Cl. I. i. 4. 2.

GEN. II. SPEC. IV. Clonus Nictitatio. Twinkling of the eye-lids.

pores filled with this fluid from an opake body it becomes transparent, and radiates the light that is thrown upon it: air itself is most transparent when as much moisture is dissolved in it as it will hold; when void of moisture, indeed, it forms a dry mist, which is occasionally met with in the morning, and through which distant objects are seen indistinctly; while, on the contrary, when distant objects are seen with perfect clearness it is a sign of rain. In a mist, distant objects are also seen indistinctly; yet here the moisture is not dissolved in the atmosphere but merely suspended, and formed by the attraction of cohesion into collected spherules. We may hence account for the want of transparency in the air which is seen in tremulous motions over corn-fields on hot summer-days, and over brick-kilns, after the flame is extinguished, while the furnace still remains light. It is this dryness and want of transparency in the atmosphere over the summits of hot and arid hills, in a bright unclouded sky, as in Italy, which constitutes what is called by the painters the blue shade of light, and which is copied in most pictures of Italian scenery.

Blue shade of light in painting what.

Morbid nictitation how produced: commonly by some local irritation:

The ordinary use of nictitation is therefore obvious: but there are many persons who wink or twinkle their eyes far more frequently than is necessary for the purpose of moistening the cornea, and in whom it forms an unsightly habit. This has usually been produced at first by some local irritation, as inflammation or dust in the eyes, which quickens the natural action, and, where the stimulus is considerable, renders it irregular and convulsive. If indeed the stimulus be very vehement, the nature of the spasm is changed, and the eye-lids, instead of irregularly opening and shutting with great rapidity, become rigidly closed; and such is the force with which the orbicular muscles contract themselves on some occasions that they will snap a steel instrument that happens at the time to be introduced between them; a fact that, as we have already observed, has in one or two instances occurred in performing the operation for extracting a cataract, during which the knife has been broken short off.

but which if very severe closes the eye-lids with rigid instead of clonic spasm:

and has broken off the point of a knife by its force.

Gen. II. Spec. IV. Clonus Nictitatio. Twinkling of the eyelids.

We have seen in many of the preceding species of diseases with what ease morbid actions are continued when once introduced into an organ: and hence when any permanent irritation of the eye has excited and maintained for some days or weeks a quick repetition of twinkling, this iterative action will often be found to become habitual, and remain after the irritation has subsided.

Morbid nictitation how rendered habitual.

This morbid habit has been sometimes cured by a powerful exertion of the will; but more generally by using one eye only at a time, and closing the other: the open eye being employed in examining an object for a considerable period with great attention and steadiness. A minute examination of the stars at night through a telescope has a like corrective tendency and may be employed for the same purpose.

Remedial treatment.

SPECIES V.

CLONUS SUBSULTUS.

Twitchings.

SUDDEN AND IRREGULAR SNATCHES OF THE TENDONS.

Gen. II. Spec. V. Pathology.

This affection is to the tendinous extremities of the muscles, in which the principle of irritation is often apt to accumulate, what palpitation is to the irritative fibres of the heart and arteries: and hence, as we have already seen, it is included under the general term of palpitation by Vogel.

Affection most striking in extreme stages of debility,

We witness these starts or twitchings most frequently in extreme stages of debility produced by atonic fevers, and especially just before the act of dying. They are, in such cases, weak convulsions interruptedly undulating from one limb or part of a limb to another, too feeble to raise the limb itself, although sufficiently powerful to

GEN. II. SPEC. V. Clonus Subsultus. Twitchings.

give slight but transient swellings to the belly of a muscle, and consequently a slight involuntary flickering to its tendons. In the ordinary close of life they are the precursors of the fatal scene, the harbingers of the dying struggle, and generally indicate that the will has lost its hold, and the power of sensation is rapidly ceasing: thus affording another proof, if other proofs were wanting, to those adverted to in the Proem to the present Class, that the irritative fibres are capable of secreting their peculiar fluid for themselves, and of maintaining their function, under particular circumstances, for a much later period than the organs of perception and sensation, occasionally, indeed, for some hours after the death of every other part of the body. And as debility and irritability often exhibit a joint march, the subsultory motions are apt to become stronger, as the regular motion of the pulse becomes weaker, and at length work up those agonizing convulsions under which the little and loitering flame of life is sometimes extinguished instantaneously. Such twitchings of the tendons, however, do not always prove fatal: for they often show themselves where the case is not so extreme: and hence, they may occasionally be allayed by cordials, antispasmodics, and warmer sedatives, and are altogether lost in a favourable turn of the disease.

affording an additional proof of the secretion of a motific fluid by the irritative fibres themselves.

Why the subsultory motions stronger as the frame becomes weaker.

Hence occasionally allayed by cordials and antispasmodics.

It occasionally happens that the debility producing these weak convulsive actions is local and habitual; and in such cases they may be seen to agitate and play over a limb without any influence on the system generally, and without much injury to the limb itself. Such a state of nervous constitution may be produced by accident, but it is for the most part strictly idiopathic: and there are few practitioners, perhaps, who have not met with examples of it. Dr. Darwin gives us an instance in the following words: "A young lady, about eleven years old, had for five days had a contraction of one muscle in her fore-arm, and another in her arm, which occurred four or five times every minute; the muscles were seen to leap but without bending the arm. To counteract this new morbid habit, an issue was placed over the convulsed muscle of her arm,

These convulsive movements sometimes dependent on local debility,

and do not interfere with the general health.

Illustrated from Darwin.

and an adhesive plaster wrapped tight like a bandage over the whole fore-arm, by which the new motions were immediately destroyed, but the means were continued some weeks to prevent a return."* The author has sometimes seen it about one of the shoulders, but the extremities are its most usual seat; and he was lately consulted by a lady of a strikingly irritable habit, who was suddenly attacked with it both in her hands and feet, so as to throw her into a considerable degree of alarm. Upon inquiring into the patient's age and state of health, he was informed that she was between forty and fifty, that menstruation was on the point of leaving her, and had of late appeared very irregularly, and that she had a considerable oppression in her head. The cause was therefore obvious, and the cure was not difficult: for it yielded to a moderate venesection, and an habitual attention to the state of the bowels.

Gen. II. Spec. V. Clonus Subsultus. Twitchings. Further illustration.

SPECIES VI.

CLONUS PANDICULATIO.

Pandiculation.

TRANSIENT ELONGATION OF THE EXTENSOR MUSCLES, USUALLY WITH DEEP INSPIRATION AND A SENSE OF LASSITUDE.

This is, perhaps, the slightest modification of spasmodic actions, but as it often occurs, as in nausea on the first stage of a febrile paroxysm, whether the will consents or not, and is frequently and irregularly repeated, it cannot but be regarded as belonging to the present family on many occasions. The muscles chiefly concerned are the extensors of the lower jaw and of the limbs: the particu-

Gen. II. Spec. VI. Why to be regarded as a spasmodic action.

* Zoonomia, Catenation, Sect. xvii. i. 8.

GEN. II. SPEC. VI. Clonus Pandiculatio.

lar kind of pandiculation to which the first of these movements gives rise being called OSCITANCY, YAWNING or GAPING; and that produced by the second, STRETCHING. The muscles are excited to this peculiar action by a general feeling of restlessness or disquiet; and the spread of the action from one muscle or set of muscles to another is from that striking sympathy or tendency to catenate in like movements which we so often behold in different parts of the body without being able to explain. It is possible, however, that the synchronous motion of the muscles of the lower jaw and of the limbs, for it is rarely that yawning and stretching do not accompany each other, may be dependent upon the same line of intercourse by which trismus so often accompanies a wound in one of the extremities, and which we have already attempted to illustrate; the irritant power in the one case, leading to a fixt or entastic, and in the other to a transient and clonic spasm.

Pandiculation.

Oscitancy, yawning or gaping.

Stretching.

Exciting cause.

Pathology.

Pandiculation, considered physiologically, is an instinctive exertion to recover a balance of power between the extensor and flexor muscles, in cases in which the former have been encroached upon and held in subjection by the latter.

Natural preponderancy of the flexor over the extensor muscles.

A very slight survey of the animal frame will show us that the flexor muscles have, in every part, some preponderancy over the extensors; and that this preponderancy is perpetually counteracted by the stimulus of the instinct or of the will. We see it, from the first stage of life to the last, and most distinctly in those states in which there is most feebleness, and consequently in which the controlling powers are least capable of exercising and maintaining a balance. In the fetus, therefore, in which the weakness is most pressing, the power of instinct is merely rising into existence, and no habit of counterpoise established in the nascent fabric, every limb, and part of every limb capable of bending, undergoes some degree of flexure, and the entire figure is rolled into a ball, as the hedgehog habitually rolls himself, even after birth. As the fetus, however, increases in size and age, and the powers

Shown in the fetus.

of instinct, sensation, and volition become more perfect, this general conflexure produces occasionally a sense of uneasiness; and hence every parturient mother is sensible of frequent internal movements and stretchings of the little limbs of the fetus to take off the uneasiness by restoring some degree of balance to the antagonist powers. After birth, and during wakefulness, the stimulus of the will, directed rather to the extensor than the flexor muscles, renders the counterpoise complete for all the purposes for which it may be necessary. But the moment we repose ourselves in sleep, and the will becomes inactive and withdraws its control, the flexor muscles exercise their preponderancy afresh, though in a less degree than in fetal life, since the extensors, from habitual use, have acquired a more than proportionate increase of power. The preponderancy, however, when long exerted, still produces some degree of disquiet, and hence, occasionally during sleep, and still more vigorously the moment we begin to awake, we instinctively rouse the extensor muscles into action; or, in other words, yawn, stretch the limbs, and breathe deeply, to restore the equipoise that has been lost during unconsciousness.

GEN. II. SPEC. VI. Clonus Pandiculatio. Pandiculation. Pandiculation here exerted to restore the balance of power. A like preponderancy after birth. Pandiculation again used to restore the balance.

In all these cases, pandiculation is a natural action; it is an effect produced by the will when it is called to the particular state of these two sets of muscles, or by the instinctive or remedial power of nature, which supplies its place, when it is dormant or inattentive, to restore ease to a disquieted organ. But in an infirm or debilitated condition of the system it evinces a morbid and convulsive character, and takes place without our being able to prevent it even when the will uses its utmost effort to resist instead of to encourage it.

In all these cases pandiculation a natural action. How far a morbid and convulsive action.

How far its repetition may be of use in the shivering fit of an ague, or in a nauseating deliquium of the stomach, it is difficult to say. Yet we are at no loss to account for its frequency of recurrence: for as the whole system is, in such circumstances, thrown into a sudden prostration of strength, the extensor-muscles in consequence of being naturally weaker than their antagonists,

GEN. II. SPEC. VI. Clonus Pandiculatio. Pandiculation.

must become soonest exhausted, and give way with a more than ordinary submission to their power. And hence we behold a painful retraction over the whole system, and the preponderancy assumes a rigid and spastic character; and we may fairly conclude that much of the yawning and stretching that ensues is for the purpose of getting rid of the constrictive spasm, though these counteractions themselves often run, in the attempt, into a spasm of another kind, and become convulsive.

Frequency of recurrence how accounted for.

Yawning of indolence and fashionable indulgence.

Yawning and stretching, then, are among the signs of debility and lassitude. And hence every one who resigns himself ingloriously to a life of lassitude and indolence will be sure to catch these motions as a part of that general idleness which he covets. And in this manner a natural and useful action is converted into a morbid habit; and there are loungers to be found in the world, who, though in the prime of life, spend their days as well as their nights in a perpetual routine of these convulsive movements over which they have no power; who cannot rise from the sofa without stretching their limbs, nor open their mouths to answer a plain question without gaping in one's face. The disease is here idiopathic and chronic: it may, perhaps, be cured by a permanent exertion of the will, and ridicule or hard labour will generally be found the best remedies for calling the will into action.

GENUS III.

SYNCLONUS.

Synclonic Spasm.

TREMULOUS, SIMULTANEOUS, AND CHRONIC AGITATION OF VARIOUS MUSCLES, ESPECIALLY WHEN EXCITED BY THE WILL.

GEN. III. Origin of the generic term.

WE have already observed that CLONUS imports "agitative", or "tremulous motion of the muscles"; and hence SYNCLONUS means necessarily their "multiplied, conjunctive, or compound agitation, or tremulous motion". The term is therefore intended to denote a group of diseases more complicated in form, of more extensive range, or more connected with the general state of the constitution than those of the preceding genus; and it runs parallel with the *clonici universales* of Sauvages as far as they can be said correctly to belong to this family. The species included under this genus will be found to be the following:

Clonici universales of Sauvages.

1.	SYNCLONUS TREMOR.	TREMBLING.
2.	———— CHOREA.	ST. VITUS'S DANCE.
3.	———— BALISMUS.	SHAKING PALSY.
4.	———— RAPHANIA	RAPHANIA.
5.	———— BERIBERIA.	BARBIERS.

SPECIES I.

SYNCLONUS TREMOR.

Trembling.

SIMPLE TREMULOUS AGITATION OF THE HEAD, LIMBS, OR BOTH; MOSTLY ON SOME VOLUNTARY EXERTION.

GEN. III. SPEC. I.

Proximate cause.

Exciting causes.

THE proximate cause of this disease is an irregular secretion or flow of irritable power into the motory fibres of the muscles that constitute its seat. It is hence strictly a disease of nervous debility, either general or local: debility produced by sudden exhaustion, as in the case of great muscular fatigue from violent exercise, severe cold, or a vehement exertion of the passions, and particularly the passions of fear and rage; or debility produced slowly and insensibly by causes of tardy operation, as an injudicious use of mercury, lead, opium or other mineral and narcotic poisons; an habitual excess in hard drinking or sexual commerce, and, in some idiosyncrasies, an immoderate indulgence in tea. And, as this disease is a result of debility, it necessarily occurs as a symptom on the general spasm and prostration of strength that so peculiarly distinguish the accession of an ague-fit, and the interrupted flow of sensorial power that takes place in paralysis.

Why a concomitant of an ague-fit.

Habitual tremor sometimes found in some organs without any affection of the general health.

There are some persons, however, in whom the same convulsive action exists habitually without any morbid state of any other organs, or any other inroad upon the general health. I once knew a lady, considerably beyond the middle of life, who was strikingly affected with this complaint, insomuch that the slightest voluntary exertion of any of the muscles threw the head and arms into as great a tremor as if they had been hung

upon wires, but who enjoyed at the time, and had for a long term of years continued to enjoy, as perfect health as possible in every other respect; was lively, cheerful, animated, possessed of brilliant powers of conversation, and able to use a more than ordinary portion of exercise without fatigue.

GEN. III. SPEC. I. Synclonus Tremor. Trembling. Illustrated.

The earlier part of her life had been passed in India, but her constitution did not appear to have suffered from this circumstance; and so gradual was the attack of the affection, that though she had laboured under it for many years, she could not date its commencement from any given point of time. She at length died at the age of seventy-two or seventy-three, her corporeal powers progressively declining, and laying a foundation for a general dropsy, while her mind continued firm to the last.

Physiology.

In all cases of this kind the course of the nervous fluid in its passage through the motory fibres of the affected muscles, is morbidly interrupted at every jet, and where the organ or the constitution is in a state of debility, it flows also less abundantly as well as less uniformly. We have already observed that this fluid, in its natural course, flows only by waves or vibrations, and consequently with an interposing pause or relaxation after every efflux: but that the pause is instantaneous, and the supply so regular as to answer the purpose of a permanent and continuous tenour. In clonic tremor the pauses are, however, prolonged, and for the most part irregular or untrue to themselves; and the greater the retardation and irregularity the more marked and alarming the spasmodic shake.

Tremulous movements often regular and uniform,

In the case just adverted to, there was no other diseased action whatever; the nervous fluid was unquestionably supplied in sufficient abundance, and the pauses, though prolonged, were uniform; and it was singular to observe the influence the will possessed over the affected muscles under these circumstances, and how completely they were still under its controul: for in consequence of the uniformity of the morbid interruptions, and from the force of habit, I have seen this patient, in the midst of a

and under the controul of the will.

GEN. III. SPEC. I. Syclonus Tremor. Trembling. Exemplified.

shaking that threatened every moment to overturn whatever she took hold of, raise a cup brimful of tea, or a glass brimful of wine to her lips by way of experiment, without spilling a single drop.

Where medical treatment may be of advantage:

Where the corporeal health is so little interfered with, as in the present case, a course of medical treatment might, perhaps, do more mischief than benefit. But where the constitution is generally affected, or the muscles that form the seat of the convulsion are manifestly debilitated, general and local tonics and stimulants may sometimes be tried with advantage, though they frequently fail of producing any good effects. Sea-bathing and horse-exercise, a generous diet, change of air and scene, may be found useful auxiliaries in the general treatment; and long continued and daily friction by a skilful rubber, ammoniacal embrocations, blisters, setons, and a course of voltaism or electricity offer the best promise, as topical means of relief. The affected limbs may also be put into a train of gradual exertion for the purpose of obtaining both strength and steadiness: and to this end the head or shoulders may be occasionally made to balance an easy weight for a given period of time, and the hands to suspend or carry a wine-glass or tumbler brimful of water.

and of what it should consist.

Balance of easy weights.

Shampooing.

Here also may be recommended the kneading-friction, or shampooing of the Egyptians and Turks, which has of late become a fashionable refreshment in the watering-places of our own country, and there can be no question that the pungent and exhilarating essential oils which are applied to and absorbed by the skin afterwards, add considerably to the general efficacy. Something like this the French have long been in the habit of employing under the name of *frictions sèches* *. The horse-hair shirts and periodical flagellations of the old Franciscan friars would probably be found to answer the same purpose. But this is a remedy which is not likely to be revived in the present day whether from a medical or a moral call.

Frictions sèches.

* Ardouin, Essai sur l'Usage des Frictions Sèches, &c.

SPECIES II.

SYNCLONUS CHOREA.

St. Vitus's Dance.

ALTERNATELY TREMULOUS AND JERKING MOTION OF THE FACE, LEGS, AND ARMS, ESPECIALLY WHEN VOLUNTARILY CALLED INTO ACTION; RESEMBLING THE GRIMACES AND GESTURES OF BUFFOONS; USUALLY APPEARING BEFORE PUBERTY.

GEN. III. SPEC. II.

Specific term of modern date.

THE term CHOREA from χορὸς, "chorus", "cœtus saltantium", is comparatively of modern date in its application to the present disease, nor is it easy to determine satisfactorily who earliest employed it. It was first more limitedly denominated CHOREA SANCTI VITI, under which limitation it occurs in Sydenham, and is still known in popular language, being called in colloquial English, St. Vitus's Dance, and in colloquial French, Dance de St. Guy. According to Horstius the name of St. Vitus's Dance was given to this disease, or, perhaps, more probably to a disease possessing some resemblance to it, in consequence of the cure produced on certain women of disordered mind, upon their paying a visit to the chapel of St. Vitus, near Ulm, and exercising themselves in dancing from morning to night, or till they became exhausted. He adds that the disease returned annually, and was annually cured by the same means.

Whence called St. Vitus's dance or dance de St. Guy.

Nature and duration of the remedial dance described.

The marvellous accounts of this dance, as related by old writers, are amusing from their extravagance. The paroxysm of dancing, we are told, must be kept up whatever be the length of the time, till the patient is either cured or killed; and this, also, whether she be young or old, in a state of virginity or of parturition; and in the growing energy of the action we are further told that stools, forms, and tables are leaped over without difficulty

GEN. III. SPEC. II. Synclonus Chorea. St. Vitus's dance.

if they happen to be in the way. Felix Plater gravely tells us that he knew a woman of Basle, afflicted with this complaint, who, on one occasion danced for a month together*: and the writers add generally that it was hence necessary to hire musicians to play in rotation, as well as various strong sturdy companions to dance with the patients till they could stir neither hand nor foot †.

Said to have been sometimes kept up for a month without ceasing.

Recent case approaching to it.

The nearest approach to this kind of gymnastic medicine which I am acquainted with in modern times, is a singular case of the same disease described by Mr. Wood in the seventh volume of the Medico-Chirurgical Transactions. The morbid movements were in measured time, and constituted a sort of regular dance as soon as music was struck up, but ceased instantly upon a change of one time to another, or upon a more rapid roll of the drum, which was the instrument employed on the occasion, than the morbid movements could keep up with. Advantage was taken of the last part of this very singular influence, and the disease was cured by a perseverance in discordant or too rapid time. This form of the disease appears to have a near relation to the tarantismus of Sauvages, which is the carnevaletto delle donne of Baglivi, all of them probably nothing more than modifications of the present. Linnéus, and after him Macbride, from the epithet of *sanctus*, as applied to CHOREA, or a belief that such affections are induced by the immediate agency of a superior order of beings, have applied to it the name of HIERONOSOS, or "morbus sacer"—a name, however, which, by earlier writers, was appropriated to convulsion-fits.

Tarantismus.

Carnevaletto delle donne.

Probably synonymous with the scelotyrbe of Galen.

In Galen chorea seems to be included under a disease which he calls SCELOTYRBE, literally, "cruris turba or perturbatio",—"commotion of the leg"; and his description, which is as follows, is extremely accurate. "It is a species of atony or paralysis, in which a man is incapable of walking straight on, and is turned round to the left,

* De Mentis Alienat. Cap. iii.

† Paracels. De Morb. Amentium. Tract. i. Schenck, De Maniâ. Lib. i.

when the right leg is put forward, and to the right, when the left is put forward, or alternately. Sometimes he is incapable of raising the foot, and hence drags it awkwardly as those that are climbing up steep cliffs."

One of the best general descriptions which have been given us of chorea, is the following of Dr. Hamilton, contained in his valuable treatise on the utility of purgatives:

Description from Hamilton.

"Chorea Sancti Viti attacks boys and girls indiscriminately; and those chiefly who are of a weak constitution, or whose natural good health and vigour have been impaired by confinement, or by the use of scanty or improper nourishment. It appears most commonly from the eighth to the fourteenth year. I saw it in two young women who were from sixteen to eighteen years of age. The approaches of chorea are slow. A variable and often a ravenous appetite, loss of usual vivacity and playfulness, a swelling and hardness of the lower belly, and, in general, a constipated state of the bowels, aggravated as the disease advances, and slight, irregular, involuntary motions of different muscles, particularly those of the face, which are thought to be the effect of irritation, precede the more violent convulsive motions, which now attract the attention of the friends of the patient.

A disease of debility appearing most commonly among children.

Muscles of the face usually attacked first.

"These convulsive motions vary. The muscles of the extremities and of the face, those moving the lower jaw, the head, and the trunk of the body, are, at different times, and in different instances, affected by it. In this state the patient does not walk steadily; his gait resembles a jumping or starting; he sometimes cannot walk at all, and seems palsied; he cannot perform the common and necessary motions with the affected arms. This convulsive motion is more or less violent; and is constant except during sleep, when, in most instances, it ceases altogether. Although different muscles are sometimes successively convulsed, yet in general, the muscles affected in the early part of the disease remain so during the course of it. Articulation is now impeded, and is frequently completely suspended. Deglutition is also occasionally performed with difficulty. The eye loses its

Afterwards other muscles of different kinds.

Articulation and deglutition impeded.

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lustre and intelligence; the countenance is pale and expressive of vacancy and languor. These circumstances give the patient a fatuous appearance. Indeed there is every reason to believe that when the complaint has subsisted for some time, fatuity to a certain extent interrupts the exercise of the mental faculties."

Patient appears fatuous, and sometimes becomes really so.

Thermaier gives a case in which it was connected with a deeply melancholic temperament, and the limbs were in a state of constant snatching and trepidation*: but this is a rare concomitant; nor is fatuity a constant sequel of it even in its most obstinate and chronic form. The present author has met with various instances in which the disease has continued with considerable violence from an early period to old age, without making any inroad whatever on the mind, or even spreading to any other joints, limbs, or muscles, than those at first affected. He once knew a man under the habitual influence of this complaint who was a good orator, always reasoning with great clearness, and delivering himself with much animation. The movements of his arms were indeed in ungraceful snatches, and the muscles of the neck frequently evinced a like convulsive start, yet not so as to interrupt the flow of his periods, or to abridge his popularity. He knew another person for many years severely afflicted with the same complaint, who was an excellent musician, public singer, and composer of music; and this, too, notwithstanding that he was blind from birth. The person alluded to is the late Mr. John Printer of the Foundling Hospital. In walking he was always led on account of his blindness, and used a staff on account of the unsteadiness of his steps; but, notwithstanding every exertion, his gesticulation was extreme, and so nearly approaching the antics of a buffoon, that it was often difficult for a spectator to suppress laughter. Yet in singing and playing he had a perfect command over the muscles of the larynx and of the fingers; his tones were exquisitely clear and finely modulated; but his neck and head curvetted a little

Sometimes has evinced a deep melancholic temperament and perpetual trepidation.

The mind not unfrequently uninfluenced where the disease is violent and habitual.

Has accompanied good orators,

public musicians and singers.

Exemplified.

* Consil. Lib. II. cap. xi.

occasionally. He died when about sixty years of age, without ever exhibiting any debility of intellect.

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There is a singular form of this disease which has been called by some writers MALLEATIO, consisting in a convulsive action of one or both hands which strike the knee like a hammer. In this case the hands are usually open, but sometimes clenched. Morgagni* relates a case in which it came on even in the sound hand, if the finger of the affected one were extended. If the motion be forcibly stopped, the convulsion becomes afterward still more violent and general.

Malleatio, what.

Where the system is disposed to hysteria the paroxysm is sometimes extremely vehement, and partakes of the constitutional diathesis, making an approach to epilepsy, but distinguished from it by a continuance of consciousness and sensibility. Dr. White, of York, has given us a striking example of this mixed affection in a lady forty-two years of age, who "had always a very weak system of nerves", and was rendered speechless for an hour or two upon any sudden surprise. In November, he tells us she was affected with a fresh paroxysm, which, upon being sent for, he describes as follows:—"She complains of a violent pain in the right side of her face, and of universal erratic aches and soreness. There is a scorching heat all over the skin, except from the feet up to the ancles, which are as cold as marble. Pulse not quickened but full; mouth dry but no great thirst; body costive, which is indeed her natural habit, so as to oblige her to the frequent use of magnesia. She is regular as to the menses, the return of which she expects in five or six days. Appetite good, rather voracious: but her spirits always low after a full meal, especially dinner. Has a violent pain in the loins, which often shifts from hip to hip: the leg of the aching side being so much affected with stupor and numbness, that she drags it after her in walking. She falters in her speech at times, but this does not continue long. All the muscles of the body evince con-

Sometimes connected with hysteria.

Singular example of these mixed movements.

Description.

* De Sedibus, &c. x. 16.

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vulsive motions; not simultaneously but successively: thus, her face is first violently affected, then her nose, eye-lids, and whole head, which is thrown forcibly backward, and often twitched from one side to the other with exquisite pain. From this quarter the convulsive action removes first into one arm, and then into the other: after which both legs immediately become convulsed with violent and incessant motions, and in this manner all the external parts of her body are affected by turns. She is all the time perfectly sensible, and knows what limb is going to be attacked next, by a sensation of something running into it from the part already convulsed, which she cannot describe in words: but the foretoken has always been found to be true, though the transition is surprisingly quick. She is easiest in a prone posture. Such," continues Dr. White, "has been her situation upwards of forty-eight hours, with scarce a moment's remission, by which she complains of great and universal soreness. No words can convey an adequate idea of her odd appearance: and I do not in the least wonder that in the times of ignorance and superstition, such diseases were ascribed to supernatural causes and the agency of demons."* Even Dr. White himself applies to it, perhaps in imitation of Sauvages, the name of hieronosos.

Predisponent cause: chiefly debility of the stomach and its collatitious organs.

The predisponent cause of this disease is an irritability of the nervous system, chiefly dependent upon debility, and particularly a debility of the stomach and its collatitious organs. Most of the diseases of children are seated in this quarter; and it is from this quarter, therefore, that chorea commonly takes its rise, and shows itself in an early period of life; the ordinary occasional causes being bad nursing, innutritious diet, accumulated feces, worms, or some other intestinal irritant.

Unkindly menstruation another predisponent.

About the age of puberty there is another kind of general irritation that pervades the system: and where this change does not take place kindly, which is frequently the case in weakly habits, the irritation assumes a morbid

* Edinb. Med. Comment. Vol. iv. p. 336.

character, and is exacerbated by a congestive state of the vessels that constitute its more immediate seat: and chorea takes its rise from this cause.

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In effect, where the predisponent cause of an irritable state of the nervous system is very active and predominant, a local or temporary excitement of any organ, and almost at any period of life, by increasing the irregular flow or disturbed balance of the nervous fluid, will give rise to the convulsive movements of chorea: and hence it is that we find it so frequently united with an hysteric diathesis. On this account it has been produced by a fright *, by a wound penetrating the brain through the orbit of the eye †, by an improper use of lead, mercury, and some other metals ‡, and by suppressed cutaneous eruptions §.

An irritable temperament a predisponent: in which case any local excitement may produce the disease.

Local excitements various.

From this view of the general nature and origin of the disease, we can be at no loss to account for the great benefit which has been derived from a steady course of brisk purging in recent cases or those of early life: for this, while it carries off the casual acrimony, or unloads the infarcted viscera, seems at the same time to act the part of a revellent, and to prohibit the return of the paroxysm by a new excitement. It may appear perhaps strange to those who have not thought upon the subject, that where the disease has proceeded from intestinal irritation, it should be carried off by intestinal irritation also. But the irritations are of very different kinds: and it is so far from following of necessity that, because one kind of irritation applied to a particular organ excites a particular effect in a remote part, another will do the same, that the converse is more commonly true, and that any other kind of irritation applied to the same organ, by exciting a new action, will be the most effectual way of taking off or preventing such effect. And it is upon this ground alone

Medical treatment. First intention to destroy the local irritation. Hence a steady course of brisk purging.

* Stoll. Rat. Med. Part III, p. 405.

† Gesab, Phil. Trans. Vol. LIII. 1763.

‡ De Haen. Rat. Med. Part III. p. 202.

§ Wendt, Nachricht von dem Krankeninstitut zu Erlangen, 1783.

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that we often endeavour to cure rabies, trismus, and tetanus, by laying open the original wound to a considerable extent, or the application of some new stimulus that may answer the same purpose.

Medical treatment.

The particular purgative of no great importance: but where worms are suspected the oil of turpentine preferable.

The principle being a general one, it does not seem of much consequence what purgative is employed, provided it be sufficiently powerful: though, where worms are suspected, the essential oil of turpentine, from its being a good anthelmintic, as well as a good cathartic, will be found one of the best. It seems, indeed, to have been occasionally serviceable where worms have not been the cause, for Dr. Powell relates a case in which he completely effected a cure in a girl of seventeen by a single dose of a fluidounce *: and hence its antispasmodic power may at times co-operate with its purgative quality as well as its vermifuge power.

Purgative plan pursued by Sydenham in conjunction with bleeding: but the last rarely called for.

Sydenham, who recommended an alternation of bleeding and purging, probably derived far more advantage from the latter than the former part of his plan: it has been found peculiarly advantageous in the hands of Dr. Hamilton: and Dr. Parr, who ascribes to Sydenham the first hint he obtained upon this subject, affirms that having pursued the purgative plan with great activity through sixty cases of the disease which occurred to him in a course of twenty years' practice, he was successful in the whole of these cases except one; and that in all but this one he found the disease yield, not only soon, but with few instances of a relapse.

Similar plan useful where the cause is unkindly menstruation.

There is, therefore, no malady whatever, perhaps, that calls so peremptorily for stimulating the abdominal viscera into increased action; and as chorea often precedes puberty or occurs about this period of life, we have another reason for directing an augmented stimulus to the lower regions of the living frame, and rousing into energy the tardy development of the sexual organs. Even blistering the sacrum at this period of life, is often attended with

Blistering the sacrum.

* Transact. Medico-Chir. Soc. Vol. v. p. 358.

success. Dr. Chisholm * affirms that he found it so after a total failure of antispasmodics and the purgative plan: and, as his patients were all eighteen years of age or below, the success was probably dependent upon the principle here pointed out.

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But it is necessary to attend to the state of the system generally as well as locally; to take off the constitutional weakness and irritability, as well as the topical acrimony, and especially where the disorder has acquired a chronic character. And hence other remedies must be had recourse to as well as purgatives. The German physicians have strongly recommended the use of antispasmodics and sedatives, and especially musk, belladonna, and foxglove, with a view of allaying the irregular action, and Dr. Cullen speaks as decidedly of the benefit of opium †. But the advantage derivable from these seems to be merely palliative; and the stimulant tonics and alterants promise a better success.

Second intention to strengthen the system generally.

Antispasmodics.

Opium.

Tonics and alterants.

The cuckoo-flower or lady's smock, cardamine *pratensis*, so common to the meadows of our own country, was at one time supposed to be of essential service in the cure of this and various other spasmodic affections. Michaëlis, who is a great advocate for its use, employed it in the proportion of a drachm every six hours ‡. But it owed of late its reputation in this country chiefly to the recommendation of Sir George Baker, who published five cases of spasmodic diseases, two of them instances of chorea, in which he conceived a most decided benefit was obtained from the use of these flowers. In the hands of later practitioners, however, they have not supported their credit, and have consequently sunk into disuse. The leaves of the Spanish or Seville orange-tree as a stimulant and tonic bitter are far more entitled to attention, not only in this but in various other cases of convulsive spasm. They were

Cardamine pratensis strongly recommended by Michaëlis and Sir Geo. Baker.

Seville orange-tree the favourite remedy of De Haen, Westerhoef and Hoffman:

* On the Climate and Diseases of Tropical Countries, p. 97. 8vo. 1822.

† Mat. Med. Part II. Chap. VI. p. 246.

‡ Richter Chirurg. Bibl. B. V. p. 120.

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first recommended to De Haen by Westerhoef, who as well as Werlhoff employed them with considerable success: and they were afterwards introduced by Hoffman, as a valuable ingredient, into his celebrated stomachic elixir; and for the same reason formed a part in the composition of Whyt's stomachic tincture. They were given in the form of decoction, and in that of powder; in the last case the dose is from half a drachm to a drachm, three or four times a day.

Medical treatment.

his stomachic elixir.

Metallic salts and oxydes.

The metallic salts and oxydes have been tried in every form, with apparent benefit in a few individual cases, but without any decided or general success. The most popular of these were at one time the flowers of zinc. Dr. Gaubius first brought them into reputation, and gave to the metal the name of CADMIA; and according to his statement they worked wonders in all clonic affections whatever, chorea, hooping-cough, hysteria, convulsion, and epilepsy; on which account they were afterwards employed upon a still larger and more popular scale by the famous empiric Luddemann, under the name of LUNA FIXATA*. This medicine has, however, by no means been able to maintain its high character; and even Stoll, who once employed it as a favourite, at length abandoned it as good for nothing, and returned to the belladonna in its stead, which he employed in the form of an extract from the juice of the root; giving it from a sixth to a quarter of a grain every quarter of an hour, and, as he affirms, with very great advantage.

Oxyde or flowers of zinc.

Cadmia of Gaubius.

Luna fixata.

Ammoniated copper may be mixed with full doses of oxyde of zinc, and the stomach still bear it.

For the information of practitioners in general, however, it should be noticed that when the stomach has reached its full dose of the oxyde of zinc, it will still bear a full dose of ammoniated copper in conjunction with it, by which means the metallic power may be very much increased. Thus a delicate stomach will rarely bear more than two grains of either of these without nausea; yet it has been found that the same stomach will continue at ease under

* Dissertatio Medica inaug. de Zinco, Aut. Jacob. Hart. Lugd. Bat. 4to.

a mixed powder of two grains of the former, and two and a half of the latter, at a dose *.

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The preparations of iron have for the most part been found too stimulant: but silver in the form of its nitrate seems to have been radically successful in various well-established cases. It has commonly been given in the guise of pills, from one to five or six grains to a dose. Yet the metal that seems by far most entitled to credit in the present day, is arsenic; for it is difficult to resist the evidence from various quarters in which it seems not only to have produced benefit, but to have established a perfect cure. It is commonly given in the form of the solution of the London College, in doses of ten drops to a youth of twelve or fourteen years of age three times a-day, increasing the dose as there may be occasion.

Medical treatment. Iron. Silver. Arsenic.

In this disease, however, as in various others, it will often be found, and the remark is well worth attending to, that different remedies are required for different individuals, even where the cause is obviously the same; and that what produces no benefit in one case, is highly advantageous in another. Camphor in large doses has succeeded where turpentine or the nitrate of silver has completely failed; and a brisk purgative plan has sometimes answered where all the preceding have proved of no use whatever. It is hence we are to account for Dr. Cullen's peculiar attachment to the bark, which he tells us he has found "remarkably useful" and prefers to any of the preparations of copper, zinc or iron †: while Dr. Powell informs us that in a lady of *seventy* years of age of a very irritable habit, attacked for the first time with this complaint in severe paroxysms at night, he found musk, in doses of ten grains every six hours, succeed and produce a cure, when purging, blistering, the ammoniated spirit of amber, nitrate of silver, ammoniated tincture of valerian, castor, muriated tincture of iron, bark, and opium had all failed ‡.

Different remedies required for different individuals.

Illustrated.

Musk stated to have been useful after every other medicine had failed.

* Letter from Dr. Ocier to Dr. A. Duncan, Edin. Med. Com. III. p. 191.

† Mat. Med. Part II. Ch. II. p. 112. ‡ Medic. Transact. Vol. V. p. 192.

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Such statements to be received with caution: and why.

I am inclined, however, to think that reports of a successful use of medicines under the circumstances here stated, should be received with some degree of caution: for first the very repose itself from so active a campaign of the Materia Medica may have proved the best means of cure; and next, some mortal blow, though it did not immediately show itself, may have been given to the disease from so extensive an assault, before the plan of attack was changed, and the general charge, so to speak, converted into an affair of outposts. And hence, the musk, as being the last medicine employed, may have run off with the claim of victory, as an empiric often does when called in at the lucky moment for him, in which a disease is on the point of yielding to the plan of a more skilful though discarded practitioner.

Voltaism and electricity.

How far in this disease voltaism or electricity, as warmly recommended by De Haen, may be depended upon, it is difficult to determine. Like the preceding remedies, either appears to have been serviceable in some cases, but they are far outbalanced by the instances in which they have failed.

Gymnastic exercise in measured movements: as that of dancing, when kept within due bounds.

It is very possible that in some instances a long and punctual discipline of the affected limbs, where the disease is not very severe, to regular and measured movements, may progressively recal them to their wonted order and firmness, as a like discipline of the vocal organs in stammering has not unfrequently been found to restore them to a regularity of utterance: and with this view the gymnastic exercise of dancing, whose movements are all measured with the greatest nicety, and which was so much depended upon in former times, and asserted to have been so successful, may be well worthy of attention in the present day, provided it be kept within due bounds, and be not carried to the ridiculous extreme we had occasion to notice a few pages above.

SPECIES III.

SYNCLONUS BALLISMUS.

Shaking-palsy.

PERMANENT AGITATION OF THE HEAD OR LIMBS WITHOUT VOLUNTARY EXCITEMENT; BODY BENT FORWARD, WITH A PROPENSITY TO RUN AND FALL HEADLONG; USUALLY APPEARING AFTER MATURITY.

Gen. III. Spec. III. Synonyms.

THIS is the SCELOTYRBE FESTINANS of Professor De Sauvages, and the SHAKING PALSY of Mr. Parkinson*, The genus Tantarismus of Baligvi, seems to hold an equal point between BALLISMUS and CHOREA, and the species usually arranged under it may be resolved into the one or the other, and are done so under the present arrangement.

Origin of the specific term.

The term Ballismus (βαλλισμὸς) is not used in a medical sense by the Greek writers, but occurs in Athenæus and various other authors, in the literal sense of tripudiatio, or "tripping, capering, curvetting on the toes"; from βαλλίζω, "tripudio, pedibus plaudo"; and is hence, well designed to express the characteristic feature of the patient's being thrown involuntarily, when he attempts to walk, "on the toes and fore-part of his feet", to employ the language of Mr. Parkinson, "and impelled, unwillingly, to adopt a running pace": or as Dr. Cullen, who has indiscriminately blended this species with the preceding, expresses it, to "various fits of leaping and running"†.

Blended by Cullen with the preceding species.

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* Essay on the Shaking-Palsy.

† Pract. of Phys. Part II. Book III. Ch. iii. MCCCLIII.

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Ballismus, however, though not found in the writings of the Greek physicians, has been long established as a technical term in the medical nomenclature of later times, in which it has been used, with little discrimination, to import almost all or any of the species that belong to the present genus.

Distinctive signs.

Sauvages observes that while chorea, or scelotyrbe *Sancti Viti*, attacks the young, ballismus, or scelotyrbe *festinans*, attacks those in advanced life; and the remark is founded on a just distinction of the characters of the two diseases; though there are other features also of as striking a peculiarity, and which are here introduced into their respective definitions. SHAKING PALSY, as it is called by Mr. Parkinson, who has adopted the colloquial name, is by no means a correct designation; for though in the disease before us there is a weakness of muscular fibre, and a diminution of voluntary power in the parts affected, there is none of that diminution of sensation by which PALSY is generally characterized. Mr. Parkinson's description of the disease, however, is the best we have hitherto had, and is as follows:

Disease not properly named a palsy.

Description from Parkinson.

Commencement.

"So imperceptible is the approach of this malady that the precise period of its commencement is seldom recollected by the patient. A slight sense of weakness with a proneness to trembling, sometimes in the head, but most commonly in the hands or arms, are the first symptoms noticed. These affections gradually increase, and at the period, perhaps, of twelve months from their first being observed, the patient, particularly while walking, bends himself forward. Soon after this his legs suffer similar agitations and loss of power with the hands and arms.

Progress.

"As the disease advances the limbs become less and less capable of executing the dictates of the will, while the unhappy sufferer seldom experiences even a few minutes' suspension of the tremulous agitation: and should it be stopped in one limb by a sudden change of posture, it soon makes its appearance in another. Walking, as it diverts his attention from unpleasant reflections, is a

mode of exercise to which the patient is in general very partial. Of this temporary mitigation of suffering, however, he is now deprived. When he attempts to advance he is thrown on the toes and fore part of his feet, and impelled unwillingly to adopt a running pace, in danger of falling on his face at every step. In the more advanced stage of the disease the tremulous motions of the limbs occur during sleep, and augment in violence till they awaken the patient in much agitation and alarm. The power of conveying the food to the mouth is impeded, so that he must submit to be fed by others. The torpid bowels require stimulating medicines to excite them into action. Mechanical aid is often necessary to remove the feces from the rectum. The trunk is permanently bowed; muscular power diminished; mastication and deglutition difficult; and the saliva constantly dribbles from the mouth. The agitation now becomes more vehement and constant; and when exhausted nature seizes a small portion of sleep, its violence is such as to shake the whole room. The chin is almost immoveably bent down upon the sternum; the power of articulation is lost; the urine and feces are discharged involuntarily, and coma with slight delirium closes the scene."

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Advanced stage.

Fatal close.

The remote cause is involved in some obscurity. Long exposure to damp vapour, by lying from night to night on the bare earth, in a close unventilated prison, seems to have produced it; and possibly other causes of chronic rheumatism: and hence it has frequently supervened on chronic rheumatism itself. Long indulgence in spiritous potation has often given rise to it; and probably any thing that debilitates the nervous power.

Remote causes.

And on this account miners, and others exposed to the daily exhalation of metallic vapours, and especially those of mercury, are frequent and severe sufferers; of which Hornung has adduced many interesting examples from the quarrymen in Carniola*. It has also followed upon

* Cista, p. 280.

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worms in the intestines*; and in this case, has sometimes assumed a periodical type†.

Seat of the disease controverted.

The part of the nervous organ more immediately affected has, also, afforded some ground for controversy.

Cerebrum as regarded by Bonet.

Bonet ascribes it to a diseased state of some portion of the cerebrum, and has given examples of its being found, on dissection, to contain, in various quarters, proofs of serum, sanies, and other morbid secretions‡. But the misfortune is here, as we have already observed in similar appearances after mania, that it is impossible for us to determine whether these diseased fluids give rise to the disease or the disease to them. And hence Mr. Parkinson seems to pay no attention to them, at least as a cause, and fixes the seat of the affection in the cervical part of the spinal marrow, from which he supposes it to shoot up by degrees to the medulla oblongata. We have already shown sufficiently in the Physiological Proem to the present Class, that the nervous fibres which ramify over the extremities, whether sensific or motific, originate from the chain of the spinal marrow; and we have also shown, in discussing the diseases of trismus, tetanus, and lyssa, how acutely one extremity of a chain of any kind, and particularly of a continuous fibrous chain, sympathizes with another: and there can be no difficulty, therefore, in conceiving that wherever the cutaneous ends of the nerves of motion are torpified, or otherwise affected by any of the causes just adverted to, the vertebral column must itself very seriously participate in the mischief, and consequently the upper or cervical part of this column: and that from this point the disease must ramify to the brain before the general functions of the system become affected, as in its latter stages.

Cervical part of the spinal marrow, as regarded by Parkinson. Question examined.

Vertebral column must participate in the disease.

Remedial process. Vesicatories.

The remedial process is not very plainly indicated. Vesicatories, and other stimulants applied to the neck or even the dorsal vertebræ, have appeared useful. A

* Commerc. Liter. Nor. 1743. p. 55.
† Act. Nat. Cur. Vol. II. Obs. 143.
‡ Sepul. Lib. I. Sect. XIV. Obs. 7. 9.

seton or caustic, and especially the actual cautery, as practised so generally in France, might possibly be of more avail applied to different parts of the spine. Beyond this an active purgative system, as strongly recommended by Riedlin, has certainly been found efficacious*; and the solution of arsenic bids as fair for a favourable result here as in the preceding species. Stark tried musk, and carried it to very large doses frequently repeated every day†: but it does not seem to have produced any decisive success.

Gen. III. Spec. III. Synclonus Ballismus. Shaking-palsy. Actual cautery. Active purgatives. Solution of arsenic. Musk.

Friction of the affected extremities resolutely persevered in by a skilful rubber, with stimulant embrocations of camphor or ammonia, should also be tried in an early stage of the disease, and be alternated with the use of the voltaic trough. Here, too, we may expect to derive advantage from a free use of diaphoretic and alterant apozems, as the decoction of the woods, and especially where the disease is suspected to be of a rheumatic origin:—to which may be added a regular course of bathing in the Bath springs.

Local stimulants. Voltaic trough. Bath waters.

SPECIES IV.

RAPHANIA.

Raphania.

SPASTIC CONTRACTION OF THE JOINTS; WITH TREMBLING AND PERIODICAL PAINS.

Of this species we know little or nothing in our own country. It was first described by Linnéus, who called it Raphania, from his supposing it to be produced by eating the seeds of the raphania *Raphanistrum*, a wild raddish or sharlock that grows indigenously in our native

Gen. III. Spec. IV. Origin of specific name, and cause of the disease as fixed by Linnéus.

* Lin. Med. 4695, p. 101.

† Klinische und Anatomische Bemerkungen.

GEN. III. SPEC. IV. Raphania. Raphania.

corn-fields as well as in the corn-fields of most parts of Europe. By other writers, as Hermann and Camerarius, it has been ascribed to the use of darnel or rye * infested with the spur, or ergot, or some other parasitic plant, which, as we have already observed, is a frequent cause of other very severe complaints, as MILDEW MORTIFICATION (gangræna *ustalaginea* †) and ERYTHEMATOUS PLAGUE (pestis *erythematica* ‡). All these diseases, however, are so distinct from each other, that though there can be little doubt of their being severally produced by some poisonous material contained in the patient's food, the poison must be of different kinds, and we do not seem to be acquainted with the cause of this difference; and hence the question has given rise to much controversy, and been discussed with some warmth on the Continent; for, while the greater number of writers refer the disease to the raphania, or spurred rye (secale *cornutum*), many deny that it is produced by either of these §, and Lentin ascribes it to the honey-dew of various plants ‖, concerning which we shall have to speak in the fifth volume, under PARURIA *mellita*. That it is a vegetable poison, however, seems to be admitted by common consent, and it is possible that the poison is not confined to a single plant.

Other sources urged by other writers, but by all ascribed to the use of vitiated grain of some kind.

Illustrated.

That many poisonous plants have a direct tendency to affect the nervous system and excite entastic or clonic spasm, or a mixture of the two according to the peculiarity of the poison itself, or of the habit into which it is introduced we have frequently had occasion to notice already, and particularly under the head of ERUPTIVE SURFEIT (colica *cibaria* efflorescens ¶). This is particularly the case with several of the deleterious agarics or funguses, some of which seem to operate chiefly on the

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* Abhandlung von der Kriebelkrankheit, &c. Cassell, 1775-8. De Lall. Lolio temulento. Tubing. 1710.

† Vol. III. in loc. ‡ Id. in loc.

§ Wichmann, Beyträg. zur Geschichte der Kriebelkrankheit. Leips. 1771-8.

‖ Beobachtungen einiger Krankheiten, &c. ¶ Vol. I. p. 213.

sensific nerves, and produce a general stupor; and others on the motory, and produce palpitations, cramps, or convulsions over the whole system*. It is very probable, therefore, that the ordinary cause assigned for the present species of disease is the true one.

Gen. III. Spec. IV. Raphania. Raphania.

There is an excellent paper upon this subject in the Amœnitates Academicæ † furnished by Dr. Rothman, a pupil of Linnéus, from which the disease seems to be not unfrequently epidemical, and always to commence in the autumn. It is found, however, only among the lower orders of people, and, in the epidemic referred to, is sufficiently traced to impure admixtures with their grain, and the employment of this vitiated grain in too new a state. Dr. Rothman delineates the disease from actual observation, and does not believe it to be a new malady, as generally supposed, but thinks he has traced it in the writings of various authors from the year 1596 to 1727; which would establish, moreover, that it has been common to other parts of Europe as well as to Sweden. And in confirmation of this we may observe, that Dr. Mercard‡ describes a disease very much resembling raphania that appeared at Stade in the winters of 1771, 1772, which was evidently epidemic, and accompanied with symptoms of fatuity, or that narcotic effect which many deleterious plants are sure to produce.

Rothman's description in Amœnitates Academicæ.

Supposed to be of early date.

Dr. Cullen who has generalised far too much his description of chorea, in his Practice of Physic, seems to have embodied this species as well as the preceding in the common delineation, and hence, when he tells us that "there have been instances of this disease (chorea) appearing as an epidemic in a certain corner of the country"§, there can be little doubt that he alludes to the species before us originating from the cause now assigned, although, without some such interpretation as the present, the passage is not very intelligible.

Regarded by Cullen as a species of chorea.

The disease commences with cold chills and lassitude,

Origin and progress of the disease.

* See Heberden, Med. Trans. II. 218.

† Tom. VI. Art. CXXIII. 1763.

‡ Medicinische Versuche. Zweyter Thelle, 8vo. Leipzig.

§ Part II. Book III. Chap. iii. MCCCLIII.

GEN. III. SPEC. IV. Raphania. Raphania.

pain in the head, and anxiety about the præcordia. These symptoms are followed by spasmodic twitchings and afterwards rigid contractions of the limbs or joints, with excruciating pains, often accompanied with fever, coma or delirium, sense of suffocation, and a difficulty of articulating distinctly. It continues from eleven days to three or four weeks; and those who die generally sink under a diarrhœa or a paroxysm of convulsions.

Close.

Remedial treatment.

The warm antispasmodics, as valerian, castor, and camphor, appear to have been employed with decisive success. An emetic, however, given at the onset of the symptoms, as recommended by Henman, would probably cut short the course of the disease, and mitigate its violence. This writer advises also blistering or bathing with Dippell's Animal Oil*. Camphorated vinegar, as employed by other practitioners, would probably be found a more useful embrocation†.

Towards the close of the disease purple exanthems or vesications are said to be sometimes thrown out, which approximate it to mildew-mortification, and the erythematic pestis, both which, as we have already observed, have been traced to a similar cause.

SPECIES V.

SYNCLONUS BERIBERIA.

Beriberi. Barbiers.

SPASMODIC RIGIDITY OF THE LOWER LIMBS IMPEDING LOCOMOTION; OFTEN SHOOTING TO THE CHEST, AND OBSTRUCTING THE RESPIRATION AND THE VOICE; TREMBLING AND PAINFUL STUPOR OF THE EXTREMITIES; GENERAL EDEMATOUS INTUMESCENCE.

GEN. III. SPEC. V. Origin of generic name.

BONTIUS seems first to have introduced the term BERIBERI or BERIBERIA into medical nomenclature, and tells

* Abhandl. von der Kriebelkrankheit.

† Nachricht. von der Kriebelkrankheit.

us it is of oriental origin *: and Sauvages has hence copied it into his list of "nomina barbara, seu nec Græca, nec Latina." Mangetus affirms that the disease was known to Erasistratus, but certainly not under this name. Eustathius, however, has βέρβερι, but in the sense of "concha or ostreum", "conch or shell",—and tells us that it is a term of Indian origin. He might have said, with more propriety, of oriental origin, for it is common both in its primary and duplicate form, בר or ברא, ברבר or ברבריב to the Hebrew, Chaldee, Syriac, and Arabic, in which last it is برابير (berabir), and in all of them is a nomadic term, importing tillage and its production which is grain, or pasturage, and its production which is sheep, or other cattle; and hence, probably the origin of *brebis* or sheep in the French tongue. The term is said to be applied to this disease in India from the patient's exhibiting, in walking, the weak and tottering step of a sheep that has been over-driven.

Gen. III. Spec. V. Synclonus Beriberia. Beribery. Barbiers. How regarded by Sauvages. Said to have been known to the Greeks, but not under this name, as they used the word in a different sense. Term clearly of oriental origin: and common to most oriental tongues. Probably the etymon of the French brebis.

This disease, though common to various parts of India, is chiefly met with on the Malabar coast and in Ceylon: and seems to be produced by sudden transitions of the atmosphere from dry to damp, and from sultry calms to chilling breezes, by which the nervous and absorbent systems are peculiarly debilitated and torpified. In this region it attacks both natives and strangers, but particularly the latter during the rainy season, which commences in November and terminates in March; through a great part of which, also, the land-winds blow from the neighbouring mountains every morning about sun-rise with great coolness; and hence those who sleep abroad, or without sufficient shelter, are equally exposed to the influence of a penetrating chill and damp.

Disease chiefly found on the Malabar coast and in Ceylon. Causes.

Fresh troops, partly from their being new to the climate, but chiefly from their want of a sufficient degree of caution, very frequently suffer severely from this complaint so long as the rainy season continues. Thus we

Fresh troops principally affected. Exemplified.

* De Medicinâ Indorum. Cap. I.

Gen. III. Spec. V. Synclonus Beriberia. Beribery. Barbiers.

learn from Mr. Christie that the 72nd regiment was severely attacked with it in the autumn of 1797, not many months after its arrival, and continued to suffer from it till the ensuing spring; and that the 80th regiment, which relieved the 72nd in March 1797, was equally attacked with it in the ensuing November. It is, however, in all such cases most frequently to be found amongst those who have previously weakened their constitutions by sedentary habits or a life of debauchery: and particularly where too free an indulgence in spirits has co-operated with sedentary habits, as among the tailors and shoemakers of a battalion; who, in order to give them time to work at their respective trades, are often excused from the duties of the field, and by their double earnings, are enabled to procure a larger quantity of spirits than other men. And we may hence in some degree account for Mr. Christie's remark that, during his stay at Ceylon, he never met with an instance of this complaint in a woman, an officer, or a boy under twenty.

Predispositents.

History and progress of the disease.

The disease commences with a lassitude and painful numbness of the whole body, the pain sometimes resembling that of formication. The legs and thighs become stiff, the knees are spasmodically retracted, so that the legs are straightened with great difficulty and instantly relapse into the retracted state, whence the patient is apt to fall if he attempt to walk. In some cases, indeed, the motory and sensific power, instead of flowing through the muscles of loco-motion irregularly, does not flow at all, and the limbs become paralytic. And even where the spasmodic action exists, it often travels or extends to other parts of the body, and particularly to the chest and the larynx, so that speaking and respiration are conducted with great difficulty.

At the same time the whole of the absorbent system exhibits equal proofs of torpitude, the legs first, and afterwards the entire surface of the body becomes bloated and edematous, and all the cavities, particularly those of the chest, are progressively loaded with fluid: and hence towards the close of the disease, where it terminates fatally,

the dyspnœa is extreme, and accompanied with an intolerable restlessness and anxiety, and constant vomiting; the muscles are convulsed generally; while the pulse gradually sinks, the countenance becomes livid, and the extremities cold.

Gen. II. Spec. V. Synclonus Beriberia. Beribery. Barbiers.

Such is the course of the disease as it shows itself at Ceylon, where it seems to rage more severely than on the Malabar coast, and where we are told by Mr. Christie, inspector-general of the hospitals at this station, whose account is confirmed by Mr. Colhoun *, that its progress is so rapid that the patient is often carried off in six, twelve, twenty-four, or thirty-six hours from its onset, though it ordinarily runs on for several weeks.

Sometimes peculiarly severe and rapid.

Since the first edition of the present work, various important communications have been made to the Army Medical Board upon the subject before us. These, by the kindness of my eminent friend the Director-General, I have been enabled to examine, and they concur in supporting the general character of the disorder as given above; as they do also in affirming that neither women, officers, nor persons under twenty years of age become the subjects of beribery; evidently because such individuals are rarely called upon to expose themselves at night, or to sleep in the open air.

Original communications from the Army Medical Board, confirming the preceding account.

From the complicated nature of the disease, however, and the variety of organs that are linked in the general chain of morbid action, suggestions have often occurred, whether beribery be not rather a modification of some other malady than an idiopathic affection; and especially whether it be not a peculiar form of anasarca deflected from its common course by accidental circumstances. The last is more especially the opinion of Mr. Collier, a staff-surgeon of considerable talents and authority; and to the same opinion I find Dr. Dwyer inclining, physician to the forces at Kandy in Ceylon. Yet, after having, in his

Beribery sometimes suspected to be a modification of some other disease, especially of anasarca.

Collier's opinion.

Dwyer's.

* Essay on the Diseases incident to Indian Seamen or Lascars on long Voyages; by W. Hunter, A.M. &c.

Lord Valentia's Travels, Vol. I. p. 316.

GEN. III. SPEC. V. Synclonus Beriberia. Beribery. Barbiers.

manuscript report, which is a very valuable document, called it incidentally by the name of *acute anasarca*, he tells us that from the great diversity of its symptoms, many cases have been referred to apoplexy, carditis, aneurism, gastritis, which were purely examples of beribery. And he then proceeds as follows: "although allied in many of the symptoms to dropsical affections IT IS TO BE CONSIDERED DISTINCT BOTH IN SYMPTOMS AND TREATMENT." And to the same effect, a very able inspector of hospitals in the same quarter, Dr. Farrell, who observes as follows: "I cannot help thinking still, notwithstanding the weight of his (Mr. Collier's) authority, that the affection commonly called beri-beri is a disease of exhaustion and debility, occurring chiefly in persons of intemperate habits, and labouring under other maladies." In effect it is not only a disease of exhaustion and debility, but of these properties peculiarly applied to the nervous system; the dropsical and apoplectic symptoms only taking place secondarily, and as a result of the general weakness. "The more prominent symptoms", observes Dr. Dwyer, in the manuscript report just alluded to, "were numbness of the extremities, muscular power greatly impaired, walking attended with a considerable degree of unsteadiness, pain, tottering and weakness of the joints; such instability of gait as resembles a person walking on his heels; sometimes paralysis. *In the latter stages of the disease, when the thorax becomes* affected, increased uneasiness of the epigastrium and vomiting succeed; dyspnœa and all the symptoms of hydrothorax."

Farrell's.

Description by Dwyer.

Spasmodic action at times very extensive. Strikingly illustrated.

At times the spasmodic action spreads, even from the first to other organs than the limbs, and produces a very striking effect. A sergeant of the 45th regiment, of sober habits, who seems to have nearly recovered from two previous attacks at Kandy about a year before, and had left the hospital, was suddenly seized, April 1, 1822, with "an extreme difficulty of breathing, inability to walk or speak much. The muscles of the forehead, face and nose were in motion at the exertion made to speak or breathe. The corrugations of the latter gave a sharpness

of countenance very peculiar, but indicative of great distress and anxiety. The countenance soon became livid; the pulsations of the heart were loud and fluttering; its strokes against the side could not be distinctly counted. He was bled two pounds without much relief. The appearance of this poor man was very affecting. The blood drawn was sizy; and, upon re-opening a vein from a large orifice, he again bled freely; but becoming exhausted, it was thought prudent to stop it again. His legs were much swelled, and pitted on pressure. They were covered with small livid spots, as well as other parts of his body, like flea-bites, but much larger. *He died in half an hour afterwards.* The thighs and abdomen were but little swelled in proportion to his legs, but evidently larger than natural. His arms were emaciated, and no part edematous. He appeared of stout make."

Gen. III. Spec. V. Synclonus Beriberia. Beribery. Barbiers.

The intumescence of the legs seems to have been a result of debility from the two prior attacks: but it was nevertheless expected that most of the cavities of the body would have given proof of an hydropic affection; and I have selected this case as one of the strongest in support of such an opinion; for, in general, though water is traced, sometimes in one cavity and sometimes in another, yet there is seldom much accumulation, and still more seldom such as to produce oppression. Dr. Dwyer took a minute of sixteen cases, and his remark upon the whole of these is: "water is *usually* found in some of the cavities, but the organs vary": and such an observation is alone sufficient to take beribery out of the list of proper dropsies, whatever other place we may assign to it.

General remarks on the case.

An early post-obit examination, however, of the case before us showed as follows: "About an ounce of serous straw-coloured fluid escaped in various ways, on opening the dura mater. Filling up the gyri on the surface of the brain, we observed a gelatinous transparent matter of some tenacity and consistence: it looked like a coating of isinglass. *In the ventricles there was but very little fluid:* in no other part of the cranium were indications of pre-existing disease observed." In the thorax there were

Post-obit examination.

GEN. III. Spec. V. Synclonus Beriberia. Beribery. Barbiers.

various adhesions, especially within the pericardium; on opening which seven ounces of a straw-coloured serum was found in it, yet warm. *No fluid in the thoracic cavity.*—In the abdomen there were few morbid appearances, except in regard to the spleen, which was as large as an ordinary sized liver, and weighed three pounds ten ounces. The liver of its usual size, but had a mottled appearance. *Only eleven ounces of serous or dropsical fluid were found in this cavity.*

Curative intention. Diaphoretics and stimulants.

The curative intention is to re-excite the absorbent system and the affected branches of the nerves to a discharge of their proper functions by a process of diaphoretics and stimulants. Squill pills and calomel are chiefly depended on for the latter, and James's powder for the former, though the compound powder of ipecacuan seems better calculated for the purpose, as containing a sedative admirably adapted for allaying nervous irregularities.

Sand-bath.

On the Malabar coast, it is no uncommon practice to excite perspiration in this complaint by burying the patient in a sand-bath: for which purpose a hole is dug in the sandy soil, into which he is plunged as deep as to his neck, and confined there as long as he can bear the heat of the sand that surrounds him.

Spirituous cordials.

The strength, throughout the whole, is supported by cordials, and in many instances even by ardent spirits diluted for the purpose; punch is a common drink on this occasion, and the refreshing and sedative power of the acid entitles it to a preference.

Local applications.

To remove the numbness and pricking or formicative pain from the limbs, friction and stimulant liniments are applied locally, and not unfrequently the legs are plunged into a pediluvium. And where the disease assumes an alarming appearance, and the spasmodic symptoms are very violent, recourse is had to a hot-bath, and the strongest cordials and antispasmodics, as brandy, sulphuric ether, or its aromatic spirit, and laudanum, which it is sometimes found necessary to continue for several weeks.

Convalescent regimen.

In convalescence the patients should be removed, as soon as may be, to a drier and more equable temperature,

and be put upon the ordinary plan of tonics, regular exercise, and nutritive diet. In milder cases they generally recover with the shifting of the monsoon, which carries off the remote cause of the disease, and brings a change of temperature home to them.

GEN. III. SPEC. V. Synclonus Beriberia. Beribery. Barbiers. Treatment.

Beribery has not been hitherto described as existing in any other part of the world, and if it should be found it will probably exhibit a modification of some of the symptoms according to the quarter in which it appears. I am induced to make this remark from observing in the Transactions of the Medico-Chirurgical Society*, an account of a very singular spasmodic disease by Dr. Bostock, which evidently belongs to the present genus, and seems to be a variety of the present species assuming a chronic form. The patient, who was in the middle of life, was first attacked with achings in the lower limb on one side, accompanied with a difficulty and irregularity of motion, which soon spread to the other side, and then gradually to the throat, so as to hinder deglutition except with great pain and severe exertion: the larynx next became affected so as to prevent speech, and afterwards the back of the neck, the muscles affected being the voluntary alone. From the spastic rigidity of the limbs they were both bent and straightened with a like difficulty. The pricking pain like that of pins, or of a limb awaking from stupor, common to the extremities in beribery, was present here also, though apparently without stupor or edematous swellings. Yet the intellectual powers were at length affected and weakened; the failure of understanding gradually increasing but principally showing itself in paroxysms, during one of which the patient died. No cause of the disease could be traced before death or by dissection afterwards.

Beribery not described as existing elsewhere: but a case of great similarity has occurred in our own country, described by Bostock.

* Vol. IX. Art. I. p. 1.

CLASS IV.

NEUROTICA.

ORDER IV.

SYSTATICA.

Diseases affecting several or all the sensorial Powers simultaneously.

IRRITATION OR INERTNESS OF THE MIND EXTENDING TO THE CORPOREAL SENSES OR THE MUSCLES; OR OF THE CORPOREAL SENSES OR THE MUSCLES EXTENDING TO THE MIND.

Class IV. Order IV. Present order as contrasted with the preceding divisions.

THE sensorial powers are those which are dependent on the sensorium or brain as their instrument or origin; and are three in number, the intellectual, the sensific, and the motory. Thus far we have only contemplated these as they are affected singly, or, where more are affected than one, as influencing the rest only secondarily or sympathetically. The diseases of the present order are of a more complicated origin and nature, and affect several or all the sensorial powers conjointly from the first. The order is hence denominated SYSTATICA, a Greek compound from *συνίστημι*, "congredior, consocio". *Syncop-*

Origin of ordinal term.

tica might have been employed and upon as large a scale, so as to denote increased as well as diminished action, *impellentia* as well as *concidentia*; but this term is usually limited to express maladies of the latter kind, and, consequently, might have produced confusion, since the present order, like all the preceding, includes diseases evincing different and even opposite states of action.

CLASS IV. ORDER IV. Systatica. Synonyms.

The genera appertaining to it are the following:

I.	AGRYPNIA.	SLEEPLESSNESS.
II.	DYSPHORIA.	RESTLESSNESS.
III.	ANTIPATHIA.	ANTIPATHY.
IV.	CEPHALÆA.	HEAD-ACHE.
V.	DINUS.	DIZZINESS.
VI.	SYNCOPE.	SYNCOPE.
VII.	SYSPASIA.	COMATOSE SPASM.
VIII.	CARUS.	TORPOR.

GENUS I.

AGRYPNIA.

Sleeplessness.

DIFFICULTY OR INABILITY OF OBTAINING SLEEP.

GEN. I. Origin of generic term not noticed by Cullen but generally by his predecessors.

AGRYPNIA (*ἀγρυπνία*) is a Greek term significant of the English SLEEPLESSNESS, by which it is here rendered. The affection is not introduced into Dr. Cullen's nosological arrangement, and has consequently been omitted by most nosological writers since his time; but it occurs in the greater number of those who preceded him; and its claim to be considered as an idiopathic affection, is as clear as that of most diseases concerning which there is no dispute.

The two following species are embraced by this genus:

1. AGRYPNIA EXCITATA. IRRITATIVE WAKEFULNESS.
2. ——— PERTÆSA. CHRONIC WAKEFULNESS.

SPECIES I.

AGRYPNIA EXCITATA.

Irritative Wakefulness.

SLEEP RETARDED BY MENTAL EXCITEMENT: LISTLESSNESS TO SURROUNDING OBJECTS.

GEN. I. SPEC. I.

ON the physiology of sleep and dreaming, we briefly touched under the genus PARONIRIA or SLEEP-DISTURB-

ANCE in the first order of the present class, but the subject is of great extent and complexity, and cannot be followed up into any detailed explanation in a work on pathology. At present, therefore, I can only observe that natural sleep is a natural torpitude of the voluntary organs of the animal frame, produced by a general exhaustion of sensorial power in consequence of an exposure to the common stimulants or exertions of the day. And hence, if such exhaustion do not take place, natural sleep cannot possibly ensue, though morbid sleep undoubtedly may as produced by other causes.

GEN. I. SPEC. I. Agrypnia excitata. Irritative wakefulness. Natural sleep what, and how produced.

Now it often happens that, from an energetic bent of the mind to a particular subject, the sensorial power continues to be secreted not only in a more than usual quantity, but for a more than usual term of time; and, in consequence of this additional supply, there is no exhaustion at the ordinary period, and therefore no sleep. Severe grief is often a stimulus of this kind; during which a morbid redundancy of sensorial power continues to be secreted, followed by a morbid excitement of the system generally from day to day, and from night to night, till the frame is worn out by the protracted watchfulness or sensorial erethism. And it is astonishing to witness in various instances how long the frame will support itself before it is worn out, or the irritation that prevents sleep sufficiently subsides for its return, and particularly where the mind is labouring under the influence of the depressing passions, or of depressing pain. A hemicrania has kept a person awake for three months *; and a melancholy or gloom on the spirits, for fourteen months. Overwhelming joy has often a similar effect though seldom in an equal degree, or for so long a period of time. The mind may also be intensely directed to some peculiar object of study, and the energy of the will becomes in this case a like stimulus to the secretion of a fresh or protracted tide of sensorial power, so that the usual exhaustion of the nervous system does not take place at the accustomed

How prevented.

Singular examples of protracted sleeplessness.

* Bartholin. Hist. Anat. Cent. I. Hist. 64. Schenck, Lib. I. Obs. 256.

Gen. I. Spec. I. Agrypnia excitata. Irritative wakefulness.

period. This is peculiarly the case in a pursuit of the abstract sciences, or those of a more strictly intellectual nature, as the higher branches of the mathematics.

Where the determination of the mind to a particular subject is exquisitely intense, whether that subject be a passion or a problem, by far the greater part of the sensorial secretion is expended at this particular outlet; and, consequently, the frame at large, with the exception of those organs to which such outlet peculiarly appertains, is so far drawn upon, as a common bank, for a contribution of sensorial power, that it labours under a certain degree of deficiency, and hence a certain degree of torpitude, so as to become insensible to the world around it; making, in this respect, an approach to the state of mind we have already described under the name of APHELXIA *intenta*, or *mental* ABSTRACTION.

Occasional approximation to aphelxia intenta, or mental abstraction.

Medical treatment.

The cure of this species of sleeplessness is to be accomplished by allaying the mental excitement by which it is produced. This is best done by recalling the mind from the pursuit that leads it astray, and a free surrender of the will to listlessness and quiet. The perturbation will then subside; the sensorial organs become tranquillized and inactive; the secreted tide of sensorial power will be at its ebb, and the habit of refreshing slumber resume its influence. But where this cannot be obtained by the mere exercise of the will, we must call opium or some other narcotic to our aid, which, by its revellent stimulus, may coincide with the consent of the will, and produce the exhaustion, and, consequently, the quiet that is requisite for sleep.

SPECIES II.

AGRYPNIA PERTÆSA.

Chronic Wakefulness.

SLEEP RETARDED BY BODILY DISQUIET; ATTENTION ALIVE TO SURROUNDING OBJECTS.

Gen. I. Spec. II. Causes.

THE exhaustion in which the very essence of natural sleep consists supposes a perfect quiescence and inactivity of the sensorial powers. Uneasiness of any kind will become an obstacle; and hence, an aching coldness of the extremities or of any other part will prevent it; an uneasy sensation at the stomach or any other part will prevent it; an absence of the common pleasureable feeling with which we ordinarily prepare ourselves for sleep will prevent it: "And, on this account," as Darwin observes, "if those, who are accustomed to wine at night, take tea instead, they cannot sleep. And the same evil happens from a want of solid food for supper to those who are accustomed to use it; as, in these cases, there is an irksome or dissatisfied feeling in the stomach. And hence, also, too great an anxiety or desire to sleep, is another cause of its suspension; for this as a mental disquiet will only add to the corporeal disquiet which has produced it; and, as already observed, the emotions of the mind must be as quiescent as those of the body, and the will, instead of commanding or interfering, must tranquilly resign itself to the general intention.

How converted into chronic wakefulness, for very long periods;

Where uneasinesses of this kind has been permitted to continue for several nights in succession, the sleeplessness is apt to become chronic and to be converted into a habit. We have hence had examples, as noticed with

GEN. I. SPEC. II. Agrypnia pertæsa. Chronic wakefulness.

their appropriate references in the volume of Nosology, in which vigilance or sleeplessness has continued for a month without intermission*; for six months†; and even for three years‡.

for the whole life.

Mr. Gooch gives us a singular case of a man who never slept, and yet enjoyed a very good state of health till his death, which happened in the seventy-third year of his age. He had a kind of dozing for about a quarter of an hour once a day, but even that was not sound, though it was all the slumber he was ever known to take§.

Medical treatment.

The cure of this disease demands a particular attention to its cause; for if we can get rid of the organic disquiet on which it depends, we shall be pretty sure to succeed in obtaining our object. All irksome chills, and especially those of the feet, should be taken off by a sufficient warmth of clothing; and the habitual supper, or other indulgence which has hitherto preceded and introduced sleep, should be freely allowed.

Habitual indulgencies.

Soothing music, and agreeable reading.

The lulling sounds of soft and agreeable music, or agreeable reading, have been tried as concomitants, and not unfrequently with success. And narcotic aromas have at times been had recourse to, especially that of the hop, heaped into pillows; but so far as I have seen, and I have once or twice witnessed the experiment, with as little efficacy, as the pillows of the male fern in cases of rickets, which were once, according to Van Swieten, in equal estimation for this last complaint. A pediluvium as recommended by Lang‖, will often be found a much better prescription, or any means which will excite that breathing moisture, which is indicative of general ease. Soft, gentle, and general friction, and especially where there is any chill or rigidity upon the limbs, will frequently produce the same effect in a very agreeable way: and this, too,

Hop-bags.

Pediluvium.

Gentle friction.

* Grilling, Cent. IV. Obs. 90. † Panarol, Pentecost. V. Obs. 4.
‡ Plinii Lib. V. vii. Cap. 51.
§ Medical and Chirurgical Observations, &c. 8vo. ‖ Epist. XLV.

without combining it with the external use of opiates as proposed by De la Prada*, and various other writers†.

Gen. I. Spec. II. Agrypnia pertinax. Chronic wakefulness. Treatment.

Mosch was the favourite medicine of Thilenius‡, and hyoscyamus of Stoerck§. But a free and exhilarating glass of wine, as proposed by Fordyce, will often answer much better than either of them. In many cases of disquiet, and particularly in the stomach and præcordia, it might be well to try the hypnotic powers of the nutmeg, as warmly recommended by Dr. Cullen. We have already noticed this reputed effect in the East Indies which Bontius confirmed by his own experience, and which has since been confirmed by practitioners in Europe. And when taken in a large dose there can be little doubt of its somnolent virtue. In the case recited by Dr. Cullen in proof of this, the person had swallowed more than two drachms by mistake, and the effect was a drowsiness commencing an hour afterwards which gradually increased to a complete stupor and insensibility. After this he was delirious, and continued to be alternately stupid and delirious for several hours: but in six hours from the attack he was pretty well recovered from every symptom‖.

Mosch. Hyoscyamus. Wine. Hypnotic powers of the nutmeg.

Where, however, the morbid habit is too rigidly established to give way to any of these means, we must forcibly break through it by the use of opium, till the habit itself be overcome, when all narcotics should be gradually omitted.

Opium.

The wakefulness so common to old people is hardly a disease. They use but little exertion, and hence require but little sleep; and the internal inactivity is upon a par with the external. A third part of the vessels perhaps that took a share in the general energy of the middle of life is obliterated, and the wear and tear of those that remain are much less. The pulse beats feebly; the mus-

Wakefulness of old people not strictly a disease.

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* Journ. de Medicine, Tom. xxxvi.

† Ansert. Abhandl. B. i. iv. St. 45.

‡ Medicinische und Chirurgische Bemerkungen, &c.

§ Libellulus quo continuantur Experimenta, &c.

‖ Mat. Med. Part ii. Ch. v.

Gen. I. Spec. II. Agrypnia pertæsa. Chronic wakefulness.

cles of respiration are less forcibly distended; the stomach digests a smaller portion of food, for only a smaller portion is required; the intellect is less active; the corporeal senses less lively, and a minuter quantity of nervous fluid secreted by the brain and its dependencies. And hence, though there is far more weakness than in earlier life there is a less proportionate demand for exertion, and consequently a far smaller necessity for sleep.

Physiology of this state.

Symptomatic wakefulness.

From such a line of reasoning we may see why sleeplessness should be found as a symptom in excessive fatigue, violent pain of any kind, inflammation, fevers, and various affections of the brain.

GENUS II.

DYSPHORIA.

Restlessness.

TROUBLESOME AND RESTLESS UNEASINESS OF THE MUSCLES; INCREASED SENSIBILITY; INABILITY OF FIXING THE ATTENTION.

Gen. II. Synonyms.

THIS is the *inquietudo* of many authors, which the Greeks expressed by the generic term now chosen, importing, literally, "tolerandi difficultas", "a difficulty of enduring oneself". It does not expressly enter into the classification of Sauvages or that of Cullen, but is nearly synonymous with the *anxietas* of the former, which in the present system becomes a species of this genus. "*Molesta sensatio*", says Sauvages, "quæ ad jactitationem cogit, sed quomodo ab affinibus morbis discrepet, dicant qui experti sunt."

The genus embraces two species, as exhibiting restlessness or inquietude chiefly confined to the sensific or the irritable fibres; or as dependent upon the state of the mind.

1. DYSPHORIA SIMPLEX. FIDGETS.
2. ——— ANXIETAS. ANXIETY.

SPECIES I.

DYSPHORIA SIMPLEX.

Fidgets.

RESTLESSNESS GENERAL, AND ACCOMPANIED WITH A PERPETUAL DESIRE OF CHANGING THE POSITION.

Gen. II. Spec. I. Origin of the colloquial term.

THIS is what we mean by the English colloquial term *Fidgets*, from *fidgety*, most probably a corruption of *fugi-*

GEN. II. SPEC. I. Dysphoria simplex. Fidgets. Synonym.

tive, though the lexicographers have given us no origin of the term. Both import restlessness, unsteadiness, and perpetual change of place. The proper Latin term is *titubatio;* and, indeed, most languages have some peculiar term to express this troublesome and irritable sensation, though it has been rarely introduced as a disease into the nosological catalogue.

Cause.

The actual cause seems to consist in an undue accumulation of sensorial power, which seeks an outlet, so to speak, at every pore, for want of a proper channel of expenditure.

Illustration.

Thus every one becomes fidgety who is obliged to sit motionless beneath a long-drawn and tedious story of common-place facts totally destitute of interest: and still more so when he is eagerly waiting, and fully bottled up, as it were, to reply to an argument loaded with sophisms, absurdities, or untruths, and over which he feels to have a complete mastery. So the high-mettled horse is fidgety that, called out, in full caparison, and still restrained in his career, is panting for the race or the battle. " So the squirrel, when confined in a cage, feels", as Dr. Darwin has ingeniously observed on this disease, which he calls jactitatio, " a restless uneasiness from the accumulation of irritative power in his muscles, which were before in continual and violent exertion from his habit of life, and in this situation finds relief by perpetually jumping about his cage to expend a part of his redundant energy. For the same reason children that are constrained to sit in the same place at school for hours together, are liable to acquire a habit of playing with some of the muscles of their face, or hands, or feet, in irregular movements which are called tricks, to exhaust a part of the accumulated irritability by which they are goaded."

Confirmed from Darwin.

Further illustrated.

In the two last instances this irritability is simply accumulated for want of a proper outlet, and not from inordinate secretion. In the two preceding cases of the restrained horse and the restrained orator, there is added to this simple accumulation, for want of disbursement, an accumulation also from inordinate excitement.

How far a morbid affection.

It is this last source alone that can give the present

affection any thing of a morbid character: and in irritable temperaments this is often the case: for there is a diseased excess of sensorial power secreted constitutionally, which is apt, on various occasions, to show itself by a perpetual restlessness or jactitation as troublesome to those who are of the company, as to those who are afflicted with it. Gen. II. Spec. I. Dysphoria simplex. Fidgets.

Paulini* observes that worms, and Lentin† that atony alone, is a cause; and hundreds of other sources of irksome irritation may be added to these; one of the most common of which is an obstinate and unconquerable itching like that of prurigo *senilis*, and especially in a part of the body that we cannot conveniently get at to scratch: and hence ascarides in the rectum or pudendum, into which last organ they have sometimes been found to creep, is a most distressing, and, in some cases, a maddening cause. Exciting causes.

A course of cooling purgatives, warm bathing, or increased exercise, will probably be found most serviceable in this harassing complaint; with an attention to the primary disease where it is sympathetic. Remedial treatment.

SPECIES II.

DYSPHORIA ANXIETAS.

Anxiety.

THE RESTLESSNESS CHIEFLY AFFECTING THE PRÆCORDIA; WITH DEPRESSION OF SPIRITS AND A PERPETUAL DESIRE OF LOCOMOTION.

THIS species, in persons of an irritable or highly nervous temperament, and especially among those inclined to hys- Gen. II. Spec. II. Where an idiopathic affection

* Lanx. Sat. Dec. II. Obs. 10.

† Beobacht. der Epidemischen Krankheiten, p. 47.

GEN. II. SPEC. II. Dysphoria Anxietas. Anxiety.

teria or hypochondriacal symptoms, is occasionally to be met with as an idiopathic affection, to which such a temperament gives a peculiar predispoition. But we see it more frequently as a feature in the first attack of fevers, in nausea, in various affections of the præcordia, and most powerfully and most distressingly in lyssa or canine madness. It has been ascribed to the want of a free passage for the blood through the heart, in consequence of a polypous concretion or some other obstruction; to a similar difficulty of its passage through the lungs; and to a constriction of the vena portæ, producing a like impediment in the lower belly; and the anxiety has been denominated præcordial, pulmonary, or epigastric, according to the part affected, which, however, we cannot always trace out

often symptomatic.

Causes.

Alysmus of Hippocrates.

The complaint is particularly noticed by Hippocrates, who distinguishes it by the name of alysmus (ἀλυσμὸς), literally restlessness or inquietude.

Sometimes accompanied with great excitement of the nervous system generally.

It has sometimes, and especially in persons of an acutely irritable habit, been accompanied with great excitement of the nervous system generally, and spasmodic action of some or even all the muscles, displaying, according to the idiosyncrasy, the symptoms of chorea, hypochondrias, or lyssa; and has occasionally, as I have reason to believe, been mistaken for lyssa, where the morbid mind has pored incessantly on the recollection of some former scratch or bite of a dog or cat: and, like lyssa, it has sometimes terminated fatally, though by no means with a like rapidity.

Medical treatment.

Where the affection is idiopathic, an emetic will be generally found to produce the readiest assistance: after this, the warmer antispasmodics, and, if necessary, narcotics may be successfully employed, with gentle exercise and a light diet.

GENUS III.

ANTIPATHIA.

Antipathy.

INTERNAL HORROR AT THE PRESENCE OF PARTICULAR OBJECTS OR SUBJECTS; WITH GREAT RESTLESSNESS OR DELIQUIUM.

Gen. III. Origin of generic term.

ANTIPATHIA (*ἀντιπαθὴς*, from *ἀντιπαθέω*, "naturalem repugnantiam habeo",) does not occur in Swediaur or in Dr. Cullen's classification, but enters into his supplementary catalogue, "Morborum à nobis omissorum quos omisisse fortassis non oportebat"; or, as he expresses it, in another place, of diseases which were either forgotten when the arrangement was settled, or for which no fit place could be found within its limits. It occurs, however, in Sauvages, Linnéus, Vogel, and Ploucquet: and seems to comprise two species:

How far noticed by Cullen:

and other writers.

1. ANTIPATHIA SENSILIS. SENSILE ANTIPATHY.
2. ——————— INSENSILIS. INSENSILE ANTIPATHY.

SPECIES I.

ANTIPATHIA SENSILIS.

Sensile Antipathy.

ANTIPATHY PRODUCED THROUGH THE MEDIUM OF THE EXTERNAL SENSES.

Gen. III. Spec. I. Common origin and

VERY singular examples of both species belonging to this genus are recorded by the collectors of medical curiosities;

GEN. III. SPEC. I. Antipathia sensilis. Sensile antipathy.

while others are of every-day occurrence. Some may be accounted for from early fright, stories told in the nursery, or that incongruous association of ideas in early life, which we had occasion to notice in the Proem to the present class. But many are of difficult solution, and others altogether inexplicable.

frequent appearance.

Singular examples.

Under the species before us, we may mention an antipathy produced by the smell of roses; of strawberries; of mint and some other herbs: by the sound of music: or the sight of a drawn sword, which is said to have existed in King James I.: or the rattling of a carriage over a bridge, which continued for some years after mature life in Peter the Great of Russia, who was frightened, while an infant, by a fall from a bridge into the water; and who only overcame the antipathy by resolutely accustoming himself to the object of disgust.

James I.

Peter the Great of Russia.

Other instances.

The sight of crabs and lobsters, and, still more frequently, of toads and vipers, has produced the same effect. And we have a few instances of its being occasioned by what we should much less expect as a cause, the appearance of bread and cheese, or even bread alone*. The object itself, however, seems to be of little or no importance; the feeling in most of these cases results from an association of such object, whatever it may be, with some painful occurrence in early life, of which it continues to be as much the symbol or expression as letters are of ideas. In many instances the original occurrence is forgotten, but the impression indelibly remains, and the object recals the mind to its influence. There is reason to believe, however, that the antipathy is often a result of idiosyncrasy, or something peculiar in the frame-work of the individual constitution.

Common rise and progress of the feeling.

Sometimes strictly idiopathic.

* Ephem. Nat. Cur. Dec. I. Ann. I. Obs. 144. et in Schol. Dec. III. Ann. III. Obs. 149.

SPECIES II.

ANTIPATHIA INSENSILIS.

Insensile Antipathy.

THE ANTIPATHY PRODUCED THROUGH AN UNKNOWN MEDIUM.

Gen. III. Spec. II. Contrasted with the preceding species.

In the preceding species the feeling of antipathy is excited through the medium of one of the external senses, to which the object of antipathy presents itself, or with which it is associated on recollection; for it is the sight, or taste, or smell, or touch, or hearing of such object, or the idea of such sensible impression, that alone calls the antipathy into action.

Illustration of the species.

There are some persons, however, that are struck with a peculiar and indescribable kind of horror at the presence of an object which is unperceived by any of these senses, as soon as it comes within the atmosphere of some unknown influence. The presence of a cat has been often known to produce this effect, under the circumstances now adverted to, or when the animal though present has been concealed, and not one of the senses has been alive to its presence. Instances of this kind are to be found in most of the collections of medical curiosities, as well as in various other works*; and I have met with several decided instances in the course of my own practice. The affection, in this case, depends unquestionably upon an extraordinary idiosyncrasy; but by what means such an idiosyncrasy is influenced we know not. Sauvages inquires whether the effluvium thrown from the object of aversion into the atmosphere may not, in combining with the fluids of the affected person, produce an irritating and distress-

Produced in some cases by the presence of a cat though concealed.

Examples of this frequent and well supported.

Disease dependent on idiosyncrasy.

How explained by Sauvages.

* Eph. Nat. Cur. Dec. II. Ann. II. Obs. 56. Borelli, Cent. IV. Obs. 61. Emercetanus, Diætet. Polyhistor. p. 82.

GEN. III. SPEC. II. Antipathia insensilis. Insensile antipathy.

ing tertium quid, as corrosive sublimate is produced by a combination of mercury with oxymuriatic acid. The fact, at present, appears inexplicable: but it is not more singular than the wonderful power so well known to be possessed by the viverra *noctula* (common or great bat), which renders it conscious of the presence and position of objects, when all its senses are muffled, and which enables it, when flying in this state, to avoid them. This extraordinary faculty, to which we adverted in the Proem to the present class, has been called a sixth sense by several naturalists.

Viverra noctula, or common bat.

Remedial treatment.

In all these cases, whether of the preceding or of the present species, the only means in our power of destroying the anomalous or morbid impression is by introducing a counter-habit; or, in other words, by gradually inuring the sensorium to the influence of the disgustful object. By being familiarized with what at first we most shrunk from, our courage becomes hardened and the painful impression blunted; and sights, and sounds, and smells, and the most imminent dangers that could not at one time be encountered, or even contemplated without fainting, in process of time no more affect us than the roar of cannon affects the war-horse, or the mountain-tempest the mariner.

GENUS IV.

CEPHALÆA.

Head-ache.

ACHING PAIN IN THE HEAD; INTOLERANCE OF LIGHT AND SOUND; DIFFICULTY OF BENDING THE MIND TO MENTAL OPERATIONS.

Gen. IV. Origin of the generic term. Synonyms.

CEPHALÆA (κεφαλαία from κεφαλὴ, "caput") is employed by Galen, chiefly, in the sense of chronic head-ache; whence the term *cephalalgia* has been invented in later times to express affections of shorter duration. Head-aches of all kinds, however, form a natural group, and should be described under a common genus, which is here named after the oldest and most authorized term. Sauvages has particularly remarked the symptom of disability of the mental powers in the first species we are about to notice, and the remark may be applied to all the others: "difficultas cogitandi, distinctè ratiocinandi, reminiscendi." The species which may be enumerated under this genus are the following:

1.	CEPHALÆA GRAVANS.	STUPID HEAD-ACHE.
2.	——— INTENSA.	CHRONIC HEAD-ACHE.
3.	——— HEMICRANIA.	MEGRIM.
4.	——— PULSATILIS.	THROBBING HEAD-ACHE.
5.	——— NAUSEOSA.	SICK HEAD-ACHE.

SPECIES I.

CEPHALÆA GRAVANS.

Stupid Head-ache.

PAIN OBTUSE; WITH A SENSE OF HEAVINESS EXTENDING OVER THE WHOLE HEAD; SOMETIMES INTERMITTENT.

GEN. IV. SPEC. I. Remote causes of head-ache generally.

THE remote causes of head-ache are so numerous and so complicated that it is difficult to catch or arrange them; and many of them are so completely concealed from view, by a confinement to the brain itself, that we vainly endeavour to discover and analyse them.

Repelled discharges and other fluids.

Repelled discharges from the hemorrhoidal vessels, repelled or retarded catamenia, repelled fluids from the surface, are very frequent causes of one or other of the species of cephalæa now enumerated.

Whatever retards the current of the blood in the sinuses of the brain, or the veins which convey the blood from the head, will produce it.

Obstructions within the cranium.

Of this kind are various tumours, particularly of the conglobate glands, polypi, exostoses, or bony fragments separated by some violence from the internal table of the skull, not producing irritation, perhaps, till the accident that gave rise to them has long passed by and been forgotten. Hence some part of the brain has often, on dissection, been found diseased in its structure, producing, occasionally, an abscess with a considerable lodgement of pus. And, in some cases, the disease has been cured by the pus making its way through the frontal sinuses*, or through the ears †, and escaping externally.

Decayed teeth.

It has, in every age,

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* Nicolai, Decad. Observationum Illustr. Anat. Schrader. Observ. Anat. Med. Lentilius. Miscel. 1. 599.

† Gockell, Gallicin. Med. Pract. Trecourt, Mem. et Observ. de Chirurgie, N. 5.

Gen. IV. Spec. I. Cephalæa gravans. Stupid head-ache.

been produced by a decayed tooth, and has ceased on its removal; a profusion of hair on the head has been also an occasional cause, in which case it has yielded to shaving or merely thinning the hair. It has often followed upon a neglected catarrh or neglected rheumatism, and still oftener has resulted from some morbid irritation of the stomach, and especially from worms*. So again, whatever prevents a free evacuation of the right auricle and ventricle of the heart, and contributes to retard the motion of the blood in the veins which discharge their contents on this side of the heart, has a tendency to lay a foundation for this complaint.

Profusion of hair. Neglected catarrh. Acrimony in the stomach. Obstructions in the heart.

Under these circumstances nothing is more difficult than to determine, in many instances, whether a head-ache of any kind be an idiopathic or a symptomatic affection, and on this account Dr. Cullen, deviating from the general opinion of the nosologists who preceded him, has regarded it as a symptom in every instance. This, however, is to suppose that the encephalon which, from its magnitude and complexity, seems to open a theatre for more intrinsic disquietudes than all other organs whatever, is exempted beyond any of them.

Difficult often to distinguish between an idiopathic and a symptomatic head-ache: and hence regarded by Cullen as always symptomatic.

The species immediately before us, emphatically distinguished by the name of STUPID HEAD-ACHE, seems, when idiopathic, to be strictly a nervous affection of the organ, originating from nervous debility or exhaustion; or, in other words, from the want of a proper supply of that kind of sensorial fluid on which the organic feeling of comfort and refreshment depends. It is hence peculiarly marked by a general disquiet and confusion, rather than by acute pain; by a general hebetude of sensorial power which disqualifies the person labouring under it for a continuance of mental labour; and in which the sight is dim, and the hearing dull, and the memory vacant. On which account it is frequently experienced by hard students, who have sat up through the whole of the night in pursuit of some abstruse and difficult subject, or who

Pathology of the present species.

Diagnostics.

* Walther, Thes. Obs. 17. Blumenbach, Mgd. Bibl. B. II. p. 434.

GEN. IV. SPEC. I. Cephalæa gravans. Stupid head-ache.

have laboured upon the same from week to week with too small an allowance of time for sleep or exercise. In all which cases it is often relieved by surrounding the temples with a bandage steeped in cold water, which acts as a tonic upon the spent and enfeebled brain, and once more excites it to a little temporary energy. A sudden blow of severe grief often produces the same kind of exhaustion, and is accompanied with the same symptoms, during which the sufferer is equally incapable of thinking, sleeping, or attending to external objects.

In certain cases whence derived, and how best relieved.

In other cases whence derived.

A similar effect is produced by whatever else has a tendency to induce debility and torpitude in the nervous structure of the brain, as a profuse diarrhœa, repeated and immoderate venesections, and particularly any sudden faintness, or debility of the stomach. The last acts, indeed, in a double way; directly, as withholding the means of sensorial recruit; and, indirectly, from the close sympathy that, on all occasions, exists between the two organs. And hence, wherever we meet with cephalæa *gravans* as a sympathetic affection, and are doubtful to what particular organ to ascribe it, we shall, in most cases, find the stomach affected, and may venture to treat it accordingly.

General remedial process.

As much of the remedial process, however, which may be serviceable in any one of the species of head-ache before us, may be useful in the rest, it will be most expedient to reserve this subject for the close of the entire genus.

SPECIES II.

CEPHALÆA INTENSA.

Chronic Head-ache.

PAIN VEHEMENT, WITH A SENSE OF TENSION OVER THE WHOLE HEAD: PERIODIC; OFTEN CHRONIC.

GEN. IV. SPEC. II. Often from internal causes, and defies all medical aid, and why.

THIS species is, perhaps, always dependent upon some local irritation; and may be produced by many, probably most, of the irritants noticed at the opening of the preceding species: and as not a few of these have a seat in the brain itself, and must remain concealed till disclosed to us by dissection, and would be still beyond our reach if we could ascertain them from the first attack, there is no difficulty in conceiving why this form of head-ache should often defy all medical aid whatever, and run parallel with the life itself.

External causes.

Among the external causes, those productive of rheumatism are, perhaps, the most frequent, as exposing the feet for a long time to cold and damp, or lying in a damp bed with a small quantity of covering. And as all rheumatic affections, when they become chronic, have a tendency to intermit, and return periodically, we may easily see why the disease before us should do so in many instances.

Present species how distinguishable from others.

This species may therefore be distinguished by its being rather limited to some particular part of the head than extending over the whole organ; by its remissions or intermissions; by the acuteness of the pain during the return of the paroxysm; by an intolerance of all motion of the head, far more than of light or sound, both of which, however, are sometimes highly irksome; and by a peculiar feeling of tenseness or constriction over the ence-

GEN. IV. SPEC. II. Cephalæa intensa.

phalon, as though its membranes were muscles and spasmodically contracted.

Chronic head-ache.

This last symptom rarely takes place till the disease has established itself for some time, and seems to indicate a thickening of one or more of the tunics of the brain from increased action, produced by a long coure of irritation; a result which has frequently been discovered on dissection.

Other distinctive symptoms.

Where the affection is entirely rheumatic, the local pain in the head ceases as soon as a rheumatic pain takes place in any other part of the body. There is, indeed, no great difficulty in accounting for a cessation of pain in this case upon the principle of a transfer of action. But we find it cease also, or very much remit, not unfrequently in other cases, in which post-obit examinations have proved the disease to be dependent on local irritation, as some bony protuberance from the interior of the skull, ossification, or calcareous concretions in some part of the substance of the brain, a tumour in the pineal gland, or some other ganglion or commissure, or an aneurism of the carotid artery; the two last of which are particularly described by Sir Gilbert Blane, as having been detected after death, in persons who had been long and severely troubled with this modification of cephalæa.

Intervals of ease in cases produced by internal causes, accounted for.

To account for the intervals of ease that occur under these circumstances in which the cause of irritation is permanent and perpetually acting, we must call to our recollection that most organs, when they have been long exposed to a more than ordinary stimulus, become gradually exhausted and blunted in their sensibility in consequence of such exposure. And hence the pain they are occasionally sensible of, and which returns in irregular paroxysms, is produced by fresh causes of excitement, periodical or incidental, or a serious aggravation of the disease itself.

The obstruction sometimes very singularly carried off.

In a few instances, an obstructing material, forming the exciting cause, appears to have been carried off, and in one or two very rare cases, by channels, whose communication it is peculiarly difficult to account for. A caries, or some other disease, affecting a small part of the bony substance of one of the sutures, is a cause noticed by

Gen. IV. Spec. II. Cephalæa intensa. Chronic head-ache. Caries or other structural affection of the sutures. Illustrated by a singular case.

many pathologists; and this cause has, in some instances, been so obvious, that while the patient has been able to point out the precise spot of pain with his finger, the practitioner has been able to discover a considerable indentation or vacuity, proving that a part of the suture had been absorbed or detached *. In a case of this kind, related by Mr. Henry, of Manchester, the immediate seat of distress was in the lower part of the coronal suture about an inch above the sphenoides. The pain was excessively acute and lancinating, the integuments directly over it, to the extent of a half-crown piece, were puffed up like an inflated bladder, and the temporal artery appeared tense like a chord on its full stretch. Upon the subsidence of the tumour, a chasm of about an inch long, and a sixth part of an inch broad, was felt in its late course. With the disappearance of the tumour the pain was transferred a little lower to the processus condyloides, and afterwards to a situation about an inch and a half below the angle of the lower jaw-bone. Shortly after this it ceased altogether; but the patient's breath, from this time, evinced an earthy and disagreeable smell; and within a few days, without any previous fit of coughing or retching, he was suddenly seized with a feeling of suffocation from something that had dropped into the esophagus and stuck there; but which he threw up after great exertion, and found to be an angular solid substance, about the size of the last joint of the thumb, consisting, as he described it, for, unfortunately, he did not preserve it, of a hard, brown and white matter, the latter of which on being pressed fell into a dry powder. The whole was covered with a greenish mucus, and resembled exactly in smell the fetor which had antecedently affected his breath and had now subsided. About six weeks afterwards he had a slight return of the pain in the same part of the head, which lasted about two minutes, when he again became sensible of something falling into his throat which

* Banet, Sepulchr. Lib. I. Sect. I. Obs. 92. Morgagni, De Sed. et Caus. Morb. Epist. III. Art. 8. Stalpart van der Weil, Cent. I. N. I.

GEN. IV. SPEC. II. Cephalæa intensa. Chronic head-ache.

he soon hawked up, and which proved to be similar to what he had brought up before, though in smaller quantity, and broken into fragments. This was examined by Mr. Henry, and was found to be calcareous matter covered with a layer of brown tenacious mucus. The vacuity in the cranium filled up from this period, and the patient could bear the integuments to be pressed upon without pain *.

Remarks on the above case.

That the calcareous substance thus ejected from the esophagus had travelled there from the coronal suture, where before its separation, probably in the form of a caries, it had for so long a time been the cause of cephalæa, is sufficiently clear from the course it seems to have taken and the symptoms that accompanied that course; and a passage having been once formed, probably through the nasal sinus, we can readily account for the more easy and rapid descent of the second separation than of the first, and particularly as it was so much smaller in quantity. And although the nature of the passage it thus opened for itself cannot but be a matter of astonishment, it is not more mysterious than the migration of needles, and even small bullets, which have sometimes travelled almost over the whole body with little inconvenience to any part. Thus a fish-bone, after having long fixed itself in the esophagus, has worked its way into its substance, and been at length thrown out at the skin †: and the point of a sword, buried thirty years before in the eye, has at last been ejected by the palate ‡. Why, under this slow course of migration, inflammation is not produced has been ingeniously shown by Mr. J. Hunter §; but the general progress is still wonderful and unaccountable.

Medical treatment.

For the few remarks we shall have to make under the head of medical treatment, it will be most convenient, as already observed under the preceding species, to refer the reader to the close of the genus, in order that the

* Mem. Med. Soc. Lond. Vol. I. † Articulari, Practica.
‡ Hoechstetter, Observ. Medic. Dec. VI. Cas. 9. Francf. 1679.
§ On Blood and Inflammation, p. 239.

plan proper to be pursued under one species may be compared with that under another. At present it is only necessary to add further, that the irritating causes of chronic head-ache we have thus noticed, excite, occasionally, other symptoms than acute pain, and particularly clonic agitations of the muscular fibres adjoining the seat of pain, not unlike those of neuralgia, and severe and irremediable hemiplegia.

Gen. IV. Spec. II. Cephalæa intensa. Chronic head-ache. Medical treatment.

SPECIES III.

CEPHALÆA HEMICRANIA.

Megrim.

PAIN VEHEMENT: CONFINED TO THE FOREHEAD, OR ONE SIDE OF THE HEAD: OFTEN PERIODICAL.

This is, in most cases, a disease of far less importance than the preceding. Its seat seems to be chiefly in the integuments of the head, and its principal symptoms are tenderness on pressure, an obscure redness of the skin, and a suffusion of the eyes. And with these there is frequently a nauseating uneasiness at the stomach, but whether as a cause or a consequence of hemicrania, it is not easy to determine; it is most probable, indeed, that in some instances it is the one, and in others the other.

Gen. IV. Spec. III. Chiefly seated in the integuments. Symptoms.

The disease is most common to persons of delicate health or relaxed habits and an irritable temperament, and particularly when subject to dyspepsy and hypochondrism. In such persons all the causes of catarrh and rheumatism are sufficient for its production, as is any thing that disturbs the balance of the circulation. And hence it is often a result of cold feet, or the chill that follows on a dinner not comfortably digested.

Predisponents.

Hemicrania frequently assumes a periodical character, in which case the pain mostly fixes itself on the same

Often periodical.

side, or the same part of the head, in some cases being limited to a small disk of the integuments, with little affection of the encephalon, and in others striking deeply into the interior of the head, and down towards the eye, which cannot endure the least glimmer of light. In many instances, its intermissions are perfectly regular, and the paroxysm returns daily at the hour of noon *: but more commonly its attacks are produced by some incidental excitement, and are consequently of uncertain recurrence. Yet it is more frequently found in the afternoon than in the morning. So far as I have observed, indeed, it usually takes place in the evening during, or soon after, the digestion of the dinner, and in persons of the middle age of life who live temperately. In one instance, in which the disease is still very obstinate, it returns at this hour after an interval of two or three weeks, continues through the whole of the night and the ensuing day, and subsides towards the evening; the paroxysm thus lasting about twenty-four hours. In a very active and otherwise healthy man, however, about thirty years of age, who has no apparent disorder of the stomach or bowels, it commences uniformly before breakfast, continues with great violence about six hours, and then subsides; leaving intervals of about six weeks or a month.

Periods sometimes perfectly regular: more commonly of uncertain recurrence.

Yet more frequent in the afternoon than the morning. Illustrated.

Occasionally take place in the morning.

SPECIES IV.

CEPHALÆA PULSATILIS.

Throbbing Head-ache.

PAIN PULSATORY, CHIEFLY AT THE TEMPLES; OFTEN WITH SLEEPLESSNESS AND A SENSE OF DRUMMING IN THE EARS.

GEN. IV. SPEC. IV. Pathology.

IN discussing the genus PALPITATION (CLONUS PALPITATIO) we entered into an explanation of the very curious

* Schenck, Libr. Obs. 78, 79. Zecchii, Consult. Med. 90, 98. Franc. 1650.

phænomenon of the throbbing or beating of the heart, or of a particular artery, or part of an artery, which frequently takes place without any connexion with the regular systole of the circulation, often, indeed, discordantly with it both in time and force: and we endeavoured to show that these anomalies, for the most part, depend upon a peculiarly nervous irritability, and spastic tendency of the muscular fibres of the arterial fabric, sometimes limited to the artery, or portion of an artery, in which the palpitation occurs, and sometimes common to the whole arterial system.

GEN. IV. SPEC. IV. Hemicrania pulsatilis. Throbbing head-ache.

Whenever any of the preceding species of the present genus are grafted upon a constitution of this kind, or at least upon an idiosyncrasy in which one or both the temporal arteries are possessed of this spastic tendency, and are consequently disposed to run into this anomalous contraction and relaxation, we shall have an instance of the species before us which commonly originates in this manner. The consequence of which is, that a regular arterial stroke, as though influenced by the systole and diastole of the heart, is often feigned, which has no existence; and a pulsation is produced which is in no respect synchronous with the movements of the heart, and is often half as rapid again. It occurs, not unfrequently, however, that the morbid beat is in perfect accordance with that of the heart; but it is not less a spasmodic action on this account, for in the discussion already adverted to, as well as in the Proem to the third class, we have observed that the arteries, when in a state of health, suffer no alteration in their diameter during the passage of the blood through them, and that their ordinary pulsation is only produced by the pressure of the finger or of some other hard substance against their sides.

Origin.

Pulsation often inaccordant with that of the heart.

Sometimes accordant, but still a diseased action.

The species of head-ache before us, therefore, is to be regarded as something of a more compound kind than the rest, in consequence of the peculiarity of the constitution in which it occurs: with the exception of which its causes, and history, and, as we shall presently show, mode of treatment do not essentially differ.

Disease more complicated than any of the rest.

SPECIES V.

CEPHALÆA NAUSEOSA.

Sick-Head-ache.

Gen. IV. Spec. V. Spasmodic head-ache of Fothergill. Pathology.

THIS is the spasmodic affection of Dr. Fothergill, who has described it at great length and with much accuracy. As the last species consists of almost any of the preceding set down upon a constitution peculiarly predisposed to irregularity of arterial action, the present consists of the same set down upon a constitution peculiarly predisposed to irregular action of the intestinal canal. In its general symptoms, however, it is chiefly related to the stupid head-ache, and the hemicrania, particularly to the last; only that, while proper hemicrania most frequently makes its attack in the afternoon, sick-head-ache usually shows itself in the morning; though the latter, like the former, occasionally varies its hour, as it does also its length of intermission.

Description. Seat of pain variable.

The patient, observes Dr. Fothergill *, commonly awakes early in the morning with a head-ache that rarely affects the whole head, but only some particular part of it, most frequently the forehead, extending over one or both eyes. Sometimes it is fixed about the upper part of the parietal bone of one side only; sometimes the occiput is the part affected; or it darts from one place to another; and equally varies during its continuance in its degree of intensity. There is some degree of sickness usually connected with it, mostly limited to nausea, but occasionally amounting to vomiting. If the pain commence in the morning before any meal is taken, phlegm only is thrown up, unless the straining be severe, in which case bile is in-

* Fothergill's Works, p. 597, 4to. Medical Observ. and Inquir. Vol. VI. p. 103.

termixed with it. After this the pain soon begins to abate, leaving a soreness about the head, a squeamishness at the stomach, and a general uneasiness which induces the patient to wish for repose. Perhaps after a short sleep he recovers perfectly, only a little weakened by his sufferings. The duration of this species of head-ache differs, however, in different persons: in some it subsides in two or three hours; in others it extends to twenty-four hours or longer, and with a violence scarcely to be endured, the smallest light or noise rendering the pain intolerable. In young persons the paroxysm goes off soon; but, after the disease has been a companion for years, it is of longer duration, and the system becomes extremely debilitated. Its returns are very irregular: some persons suffer from it every two or three days; some every two or three weeks; and others have still longer intervals. Those who use but little exercise, and are inattentive to their diet, are afflicted most severely: costiveness, when habitual, is a frequent predisposing cause; and hence a protracted laxity of the bowels, supervening on habitual constipation, has removed the complaint altogether.

GEN. IV. SPEC. V. Cephalæa nauseosa. Sick-head-ache.

Duration of the pain variable.

Returns often irregular.

Dr. P. Warren, in a very valuable paper on this subject, seems to think that a line of distinction may be drawn between the disease as produced by a morbid state of the stomach, and of the collatitious viscera, or, in other words, as it makes an approach to the first, or to the third species before us. "Upon the whole", says Dr. Warren, "that form of head-ache, which is attended more with confusion than pain, and in which there is a temporary dimness of sight, appears to depend chiefly upon a defective action or secretion of the STOMACH; the other (that in which the pain is acute or exceeds the confusion) which is the most prevalent form, more particularly upon inactivity of the upper bowels, from whatever cause it may be produced, and an imperfection of that part of digestion in which the bile is concerned."*

How distinguished from the first species.

* On Head-aches which arise from a Defective Action of the Digestive Organs. Med. Trans. IV. Art. XVIII.

GEN. IV. SPEC. V. Cephalæa nauseosa. Sick-head-ache.

The connexion between all these species of head-ache is so close, and several of them are so apt to run into the others, that the author has reserved the few remarks he will have to make upon the remedial treatment till the whole have, as now, passed under review, and have furnished us with an opportunity of concluding how far any thing like a common plan of treatment may be advantageous, and upon what points it ought to vary.

General mode of treatment.

Leading signs and principles.

A very slight recurrence to the preceding history will show us that the chief causes of head-ache are local irritations, suddenly checked perspiration, or exposure to cold and damp; a peculiar irritability of the nervous system, and particularly a spastic idiosyncrasy of the temporal arteries, and a morbid condition of the chylopoetic viscera.

A diseased action of the stomach most commonly implicated, and requiring attention.

The last is, perhaps, the most common cause; and hence, wherever there is any doubt as to the specific character of the disease, we can never do better than treat it as chiefly appertaining to the fifth species, and implicated with a diseased action of the stomach or its collatitious organs.

Hence emetics so often serviceable with an anodyne afterwards: as also the advantage of aperients.

It is on this account that emetics, with an anodyne given afterwards, have been so generally found serviceable, and have often effected a cure in a few hours. And hence also the great advantage of keeping the bowels not only free from costiveness, but with some kind of warm irritant slightly, though constantly, acting upon them, of which one of the best is aloes, where there is no tendency to piles, and copaiba, or the extracts of rhubarb and colocynth where there is.

Piles occasionally remedial.

Piles, however, are not an affection to be much regarded in cephalæa, for it is probable that they may often become a useful revellent: and Dr. Arbuthnot was so firmly of this opinion that he was in the constant habit of employing suppositories of aloes, rock-salt, and honey, and asserted that nothing relieves the head so much as piles.

When of a rheumatic character how to be managed.

When the disease is evidently of a rheumatic character, an open state of the bowels should be combined with mild sudorifics, and, if necessary, narcotics. And hence the

benefit that is so often found from adding four or five grains of antimonial powder to an aloetic pill given at night, which rarely disturbs the patient before the morning: and, where this does not answer alone, or we have reason to fear, from a constitutional debility of the bowels, that the aperient may act in the night, we should unite a grain of opium with the other ingredients, or employ Dover's powder instead.

GEN. IV. SPEC. V. Cephalæa nauseosa. Sick-headache. Treatment.

Such a plan will, indeed, often be found to succeed even in the pulsatory head-ache or hemicrania; though here we may frequently employ such sedatives as hyoscyamus, conium, aconite, and flammula Jovis, or the antispasmodics of musk, camphor, valerian, especially its essential oil, and ammonia, with somewhat more benefit during the paroxysm; and epithems of cold salt water, or a diluted solution of acetate of ammonia, applied round the head every morning. I cannot, however, avoid thinking, that in many cases of this disease, and especially where we have a clear proof of great irritability of the nervous system, that the prussic or hydrocyanic acid may be had recourse to with considerable advantage in moderate doses of a drop or two three times a day, in a little cinnamon water, gradually increasing the power, and uniting the acid with full doses of subcarbonate of iron, as in the case of neuralgia.

Treatment of pulsatory head-ache and hemicrania.

Prussic acid:

with iron.

In some instances thinning the hair, where it is profuse, has also been found serviceable; but in others it has failed, and the following remarks of the author's late valued friend, Dr. Parr, upon the subject of shaving, are well entitled to attention. "This practice", says he, "has not the sanction of long experience, nor is it supported by reason. Each hair is a vegetable, nourished by a bulbous root, supplied by numerous blood-vessels. These, though small from their number, convey no inconsiderable quantity of fluids; and as the external and internal carotids arise from a common trunk, and anastomose in some of their branches, whatever cause increases the circulation in the former, must lessen it in the latter." He adds, that he himself was for many years a sufferer

Thinning the hair sometimes useful; but if used indiscriminately may produce mischief.

Exemplified.

GEN. IV. SPEC. V. Cephalæa nauseosa. Sick-head-ache. Treatment.

from an irregularly returning paroxysm of head-ache for which he could assign no cause, but at last discovered that it frequently returned after shaving the head: he consequently suffered his hair to grow, and from that time the disease gradually lessened in violence, in duration, and in frequency of its recurrence. "From being a complaint", says he, "highly serious, and beginning to affect the memory, its returns are now rare, and never so violent as to unfit the frame for any exertion of body or mind."

External stimulants.

Temporary relief has also, in many cases, been obtained by the external application of volatiles and aromatics, as ammonia, camphor, oil of cajeput, and ether; and where the disease has been produced by cold or rheumatism, from blisters, burning moxa*, or the actual cautery†, an issue or a seton‡. In the Transactions of Natural Curiosities, is a case of ten years' duration completely cured by the last application §. So the use of errhines has also been found serviceable, and particularly in chronic hemicrania, by stimulating the mucous membrane of the nostrils, and exciting a considerable discharge: but, as we have already observed that taking snuff is injurious in cases of indigestion, where head-ache is connected with the chylopoetic organs, sternutatories should be avoided.

Errhines serviceable.

Tonics in the intervals, especially the metallic.

In the interval of most of the cases thus far adverted to, tonics, and especially the metallic, should be employed with steadiness. It is here the nitrate of silver has been found eminently useful, when every other remedy has antecedently failed: and perhaps large doses of the sub-carbonate of iron, as already recommended, but without the prussic acid, may prove a valuable prophylactic. A tonic regimen, however, of exercise and early hours should combine, or little advantage will be gained by any plan.

Plan pursued by Linnéus upon his own person.

Linnéus is said to have cured himself of a severe and obstinate hemicrania which returned at the interval of a week, and continued for twenty-four hours, by merely drinking a draught of cold water early in the morning,

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* Wepfer, Observ. p. 81.
† Velschius, Epistgm. 11.
‡ Ruysch, Observ. 40.
§ Vol. IX, Obs. 91.

and then walking himself into a glowing heat: and in many cases no plan can offer a better promise.

Gen. IV. Spec. V. Cephalæa nauseosa. Sick-head-ache. Treatment.

The verticillated stimulant plants have, in many instances also, been found serviceable in most of the species thus far considered, whether the disease originate in the head or in the stomach, and of these the most active, as well as the most pleasant, are lavender, rosemary, and marjoram. How far the arum may answer the same purpose the author cannot say from his own practice, but it is very strongly recommended by Bergius, who tells us that when taken in doses of half a scruple of the compound powder, he never knew it fail of giving relief, even after the most celebrated remedies had proved useless or even added to the distress. It is certainly a very acrid stimulant, and seems to have been dropped from the Materia Medica too precipitately.

Verticillated stimulant plants.

Arum a favourite with Bergius.

There is one species of head-ache, however, to which but little of what we have thus far recommended will in all cases apply, and that is the second or chronic cephalæa: and on this account it is of great importance that we endeavour to distinguish it from the rest: or rather that we endeavour to distinguish those causes of it under the operation of which it is necessary to pursue a different plan: for in many instances even here the cause of irritation may be palliated, or even destroyed, by some part of the process already recommended. But we have stated that this form of the disease is often dependent upon some structural irritation within the cavity of the skull, such as a node or toph, or caries of the interior table of the cranium, a scirrhous or other tumour in some part of the brain, or a thickening of the membranes that surround it.

Treatment of chronic head-ache should mostly vary from the rest: and

And here, in conjunction with the aperient plan, or even a brisker plan of this kind than has yet been recommended, local bleeding by cupping or leeches should be had recourse to without delay. Free venesection, indeed, has often been of great service in diminishing the inflammatory action, and taking off the topical irritability for many weeks or even months. And hence, the temporal

a more reducent plan to be had recourse to.

GEN. IV. SPEC. V. Cephalæa nauseosa. Sick-head-ache. Treatment.

artery has often been opened on the continent, and with very good effect: and we may see why a vicarious hemorrhage from the nose, the mouth, the liver, or some other organ has been followed, in various cases, by a perfect cure *. And, where some other obstruction has been the cause, it has occasionally yielded to a severe fright †, or a fortunate concussion of the brain ‡, or a wound on the head §. Hildanus refers to several inveterate cases effectually overcome by accidents of this kind ‖.

Vicarious evacuations often useful.

Other incidental modes of cure.

Mercury as an alterant with warm diluents.

Here, also, if any where, we may possibly expect advantage from a long continued use of mercury as an alterant and absorbent, in connexion with apozems of sarsa, bardana, or some other warm diluent. In organic enlargements and obstructions in other parts of the body such a plan has often answered, and analogy will therefore lead us to expect some benefit in the present disease. Velschius describes a case of a most obstinate cephalæa in which it completely succeeded ¶.

Use of the trepan how far advisable.

Effects often salutary:

But where every other mean has failed, and the symptoms are violent, and the painful spot is clearly defineable, and we have strong reason to apprehend some local organic irritation, it may become a question how far the use of the trepan has a chance of being serviceable. Vogel gives a case in which the pain was hereby considerably mitigated **, and Baglivi another, in which a radical cure was effected ††. But in this instance, a portion of the brain was found in a state of suppuration, and the confined pus hereby obtained a way of escape. Marchetti gives an example of a temporary cure, the head-ache being suspended so long as the wound was open, but returning after it was healed ‡‡. And hence, even where no structural cause of

but the operation frequently of no avail.

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* Heister, Wahrnemungen, I. p. 70. Abhandl. der Königl. Schwed. Acad. der Wifsenchaft. XIII. 39.

† Reidlin, Cent. II. Obs. 55. ‡ Ephem. Nat. Cur. Cent. IX. Obs. 6.

§ Desgranges, Journ. de Med. Tom. LXII. p. 360. ‖ Cent. II. Obs. 8.

¶ Hecatost. II. 67.

** Chirurgische und Medic. Beobachtungen, p. 410.

†† Specim. Quatuor Librorum de fibrâ motrice et morbosâ.

‡‡ Observ. 36, 38.

Cephalæa nauseosa. Sick-head-ache.

irritation has been reached, this operation has sometimes proved serviceable as a revellent. It must, however, be admitted that it has often been performed without any benefit whatever.

Treatment.

It is hardly needful to observe that where cephalæa is evidently a secondary disease, as in plethora, chlorosis, gout, or neuralgia, our attention must be chiefly directed to the malady on which it is dependent. Where it appears as a sequel upon any suppressed and habitual evacuation, or repelled eruption, the best means of obtaining relief will always be found in restoring the system to its former state; and where this cannot be done we must furnish the best substitute we can by some temporary irritation or drain.

Treatment when a secondary disease.

Coffee often serviceable in various species: an excellent vehicle for laudanum:

As a general palliative, strong coffee has often proved serviceable; and, where its own sedative virtue is not sufficient, it forms one of the best vehicles for the administration of laudanum in doses of eighteen or twenty drops. It diminishes, in some degree, the hypnotic power of the latter, but it counteracts its distressing secondary effects. When laudanum is intermixed with strong coffee for the cure of many modifications of head-ache, tranquillity and ease are produced, though there may be no sleep: when laudanum, on the contrary, is taken alone, sleep will, perhaps, follow, but is mostly succeeded by nausea and a return of the pain. Hence, the Turks and Arabians make strong coffee their common vehicle for opium, from its tendency to counteract the narcotic principle of the latter *.

often preventing nausea and head-ache.

* Phil. Med. and Experimental Essays. By Thomas Percival, M.D. Vol. III.

GENUS V.

DINUS.

Dizziness.

ILLUSORY GYRATION OF THE PERSON WHILE AT REST, OR OF OBJECTS AROUND THE PERSON, WITH HEBETUDE OF THE SENSORIAL POWERS.

GEN. V. THE distressing sensation of DINUS, a strictly Greek term, occurs in different persons and different circumstances, under very different modifications, or is connected with very different symptoms. It is often united with cephalæa, and hence, by some nosologists, it is made a mere species of this last genus, but there are few practitioners who have not witnessed instances of both that have commenced, continued, and terminated their career without any interference with each other: and hence, Linnéus has not only separated them from each other and regarded them as distinct genera, but has even made scotoma, or dizziness with blindness and a tendency to swoon, a distinct genus also.

By some nosologists made a species of cephalæa; but improperly.

In the author's volume of Nosology, scotoma, with two other forms of dinus, were regarded as separate species. But as, on a fuller consideration of the subject, I am induced to think that all these diversities originate from the particular habit or temperament of the individual or the nature of the exciting cause, it will be more correct to reduce them to a single species, and to contemplate the diversities of symptoms and sensations they produce as varieties or modifications alone: and hence, adopting the common name for this purpose, we shall denominate this species

Best contemplated as containing only a single species.

I. DINUS VERTIGO. VERTIGO.

SPECIES I.

DINUS VERTIGO.

Vertigo.

DIZZINESS, WITH A FEAR OF FALLING.

COMMON as this complaint is, I have not hitherto met with any satisfactory explanation of its cause. Sauvages*, indeed, has entered upon the subject pretty fully, as has Darwin † since his time, and Crichton ‡ since the time of Darwin; while on the continent it has been investigated with much patience and ingenuity by Dr. Herz of Berlin §. For the most part it has been ascribed to a morbid excitement, or increased action in the organ of vision, which is the view taken of it by Sauvages and Darwin, or to "a state of mental confusion arising from too rapid a succession of representations", which is the explanation of Herz and Crichton.

Gen. V. Spec. I. Pathological explanation hitherto unsatisfactory.

Sauvages. Darwin.

Herz. Crichton.

That there is, in all instances, some degree of mental confusion, may, perhaps, be allowed, and that there is often too rapid a succession of representations with a morbid increase of sensorial action, may be allowed as readily: but if the following remarks be found entitled to attention, and succeed in delineating the real nature of vertigo, it will appear that the external senses are only indirectly, if at all, the seat of the morbid action: that the energy of these is far more frequently in a state of diseased diminution than of diseased increase; and that even a rapid succession of representations is not essential to the sensation.

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* Nosol. Method. Class VIII. Vesaniæ. † Zoonom. Class IV. II. i. 10.

‡ Of Mental Derangement, Vol. I. p. 324.

§ Versuch über der Schwindel. Berlin, 1791.

GEN. V. SPEC. I. Dinus Vertigo. Vertigo.

New view of the subject.

Irritative power how communicated to the irritable fibres.

We have had frequent occasions of showing that the nervous power which supplies the muscular fibres is communicated, not strictly speaking, in a continous tenour, but in minute and successive jets, so that the course of this delicate fluid is alternately broken and renewed by a series of fine and imperceptible oscillations. In a state of health and vigour this succession of influx and pause is perfectly regular and uniform, and hence, whatever movements result from it will partake of the same uniformity, and appear to be one continued line of action instead of a successive series. But as soon as ever the harmonious alternation through which the nervous power is thus supplied, is interfered with, the oscillations become manifest; the apparently uniform current is converted into a tremulous undulation, and the muscular exertion to which it gives rise, instead of being seemingly one and undivided, is sensibly multiplied into hundreds: of which any person may convince himself on observing a strong and healthy arm extended for a few minutes with a small weight at the end of the fingers, and an arm reduced in strength by a fever, or any previous labour; for while the first maintains an even and uniform line, in the second this line is broken into perpetual tremors and undulations.

All other nervous fibres supplied in a similar way: and subject to similar disturbances in the line of communication.

That the nervous power which supplies the muscular fibres is communicated in this way there is no doubt; and, as it is highly probable that all the different kinds of nervous fibres are fed by a like process; there can be little doubt, also, that those which maintain an intercourse between the brain and the external senses, and even those which belong to the external senses themselves are supplied by the same kind of alternating pause and flow. And consequently that, as a perfect regularity and uniformity in this alternation is the means of conveying from the organ of vision to the sensorium one undivided perception of every single object presented to it, so, an irregularity and want of uniformity in the alternating series, must confuse and complicate the perceptions, and multiply them into as many as the series of jets themselves consist of, though each perception may, perhaps, be less

From this want of uniform action in the flow of the sentient

distinct and perfect than the single perception conveyed in the ordinary course. Thus, in looking through a window, or an eye-glass, the objects that pass before us in regular order, pass singly and without confusion; but if this order be interrupted by movements we are not accustomed to, or the objects jerked about, as in a magic lanthorn, they make us dizzy with their motion, and we see them confusedly and in delusive numbers.

GEN. V. SPEC. I. Dinus Vertigo. Vertigo.

power a confusion and complication of representations.

In this manner, then, it appears to me that the increased motion, and apparently rapid succession of representations, is produced in the affection we call vertigo: which, under this explanation, is a clonic action of the nervous fibres subservient to perception, in the same manner as the rapid and tumultuous agitation of the muscles in tremor, shaking palsy, or epilepsy, are a clonic action of the fibres subservient to voluntary motion. In the last of these affections we find a considerable difference in the nature and intervals of the clonic movements; for these must depend upon the greater or less degree of interruption, which the nervous power sustains in its flow, or upon the peculiarly relaxed or spastic state of the nervous fibres themselves, and probably, at times, upon some other cause of which we are totally ignorant. And we have, hence, reason to expect, and do in fact perceive, an equal diversity in the clonic and illusory motions of vertigo; for the objects or their representations presented to the perception appear sometimes to circumvolve horizontally from right to left, or perpendicularly from above downwards, or from below upwards, or to be very whimsically changed in their form. And not unfrequently the patient himself seems to be moving as well; and commonly in a contrary direction to the apparent motion of the objects. And as the intermediate nerves between the other external senses and the brain seem occasionally to coincide in the same morbid agitation, we can easily conceive how that very common modification of the disease may be produced in which the dizziness is combined with illusory sounds, as of whispering or murmuring, the ringing of bells, or beating of drums, or even the roar of

Hence vertigo a clonic action of the nervous fibres subservient to perception.

Principle applied to the phænomena of vertigo.

Why objects appear to circumvolve,

why the patient himself.

GEN. V. SPEC. I. Dinus Vertigo. Vertigo.

cannon: for, as single objects may, under the influence we are now contemplating, be prodigiously multiplied or magnified, so may single, and otherwise almost imperceptible sounds; and especially where the auditory nerve is itself in a state of high morbid acuteness, during which we have already had occasion to remark that the gentlest and lightest tones, even the whisperings of a mere current of air in a room, or the breathing of persons present, is intolerable, while sounds before unperceived become highly distressing *. And in like manner by an equal irregularity in the flow of the nervous fluids subservient to the perceptions of smell and taste, we may account for similar illusions upon these faculties.

Whence illusory sounds, and multiplication of objects.

Whence illusory smells and tastes.

In many instances, we find the vertigo equally present whether the patient be in the dark or light, whether the eyes be closed or open; and we have hence a full proof that it is not dependent, as Dr. Darwin conceives, upon an increased energy in the irritative motions of the organs of vision. In some cases the representations of objects are very numerous and rapid, but in others far less so, and particularly where the affection is severe from the first, or the patient is in a state of constitutional debility; under which circumstances we may conceive the pauses in the flow of the nervous fluid to be more irregular or of longer duration than they otherwise would be. In many cases, indeed, the only sensation is that of a buoyant undulation or swimming without any succession of representations whatever; affording us a proof that the rapid succession of representations described by Dr. Herz, is not more essential to vertigo than the increased energy of Dr. Darwin.

Vertigo often present whether there be light or darkness: hence not from increased energy in the irritative motions of the organs of vision, as conceived by Darwin.

Objects not always represented as frequently rapid or successive or increased in number as supposed by Herz.

But as the disease advances, or, in other words, as the flow or secretion of the nervous fluid becomes still more interrupted, the representations are confused, indistinct, and rapid in succession, often conjoined with a sense of dimness or darkness, existing equally whether the eyes be shut or open, forming a state by Hippocrates and the

* See Paracusis acris, Vol. III. Cl. IV. Ord. II. Gen. II. Spec. I.

Greek writers generally called scotoma or scotodinus: and as the disease makes a further progress by a further interruption in the flow of the sensorial fluid, every power of body and mind augments in languor, till at length sensation both external and internal fails altogether, the action of the heart, and the other involuntary organs is enfeebled, and the patient swoons away, or sinks into a fainting fit, constituting the morbid condition we shall have to describe under the next genus.

GEN. V. SPEC. I. Dinus Vertigo. Vertigo. Scotoma and scotodinus what. Swooning often an effect, and why.

The great predisponent cause in all these cases, whether of muscular agitation or of vertigo, is nervous debility or exhaustion: the exciting causes are whatever has a tendency to disturb the uniformity with which the nervous power is supplied through the whole of its fibres, and from one fibre to another. And hence those persons are most subject to both kinds of affection whose nervous system is constitutionally weak and mobile, or has become debilitated by disease or accident. Hence dyspeptic patients are peculiarly subject to both these affections; as are those who are faint from sudden and violent evacuations, want of food, or a long course of labour. Hence we meet with it as a frequent and distressing attendant upon those who have too freely indulged in the pleasures of the table, in those of sexual intercourse, and particularly the gross gratification of self-pollution. And hence, too, we may see why it is so often an accompaniment of cephalæa, as the nervous fibres subservient to the organs of perception are here influenced from contiguous, in some cases from continuous, sympathy.

Predisponent cause of vertigo as of clonus, nervous debility, or exhaustion.

Who chiefly subject to these affections.

The exciting causes we have stated to be whatever has a tendency to disturb the uniformity with which the nervous power is supplied through the whole line of its fibres. Of these the chief are motion or exertion to which the strength is not equal; motion to which the system has not been accustomed, or hurried motion whether external or internal.

Exciting causes: chiefly of three kinds.

In a state of great weakness, whether from hunger, hard labour, hemorrhage, or a protracted fever, even the ordinary motion of gentle walking is more than the little

First kind, motion or exertion to which the strength is not equal.

GEN. V. SPEC. I. Dinus Vertigo. Vertigo.

remaining strength can support: and the man who tries it trembles in every limb and becomes immediately vertiginous. In like manner whatever be his degree of strength he will feel vertiginous by exchanging the motion to which he has been uniformly accustomed for one of a different kind, and which he has seldom or never engaged in; and hence, the reason of the vertigo that accompanies swinging, sailing in a ship, walking in a circle, sitting backward in a carriage, or standing on one's head; for the uniformity of the external habit has by length of time associated itself with the uniform flow or secretion of the sensorial fluid, and the one cannot be interfered with without interfering with the other. And that this is the cause of the dizziness hereby produced is obvious, since as soon as the old habit is overpowered by a new one, or, in other words, as soon as the man has accustomed himself to the new action, it may be persevered in without any vertiginous sensation whatever. In some persons this sympathy of association is not so strong as in others, and hence, they are not so soon affected: in infants and young children such a kind of sympathy has rarely commenced, for while their age has not given time for it, they have had so little walking in a straight line, and been accustomed to so much swinging and tossing about in the arms, in every direction, that they are equally prepared for all; and hence can run round a circle, or even circumvolve on their feet, without any feeling of giddiness whatever.

Second, motion to which the system has not been accustomed.

Third kind, hurried or tumultuous motion external or internal.

For the same reason hurried, tumultuous, or confused motion of any kind, whether external or internal, has a tendency to produce the same effect; for the current of the nervous supply will partake of the agitation, and dizziness be a necessary result. Hence the vertigo that accompanies intoxication, in which, from the inordinate excitement that prevails throughout the system, the regular and uniform stream of the sensorial fluid is quickened into a confused and disorderly rush. And hence the same effect from congestion, or compression of any kind, as also from a sudden influence of mental emotion, and

particularly of the depressing passions: though in such cases the uniformity of the sensorial stream is interfered with by a check, instead of by a rapidity of action: and where the check is considerable, as in cases of sudden fright or apprehension, a fainting-fit is at once produced without the preceding stages.

Gen. V. Spec. I. Dinus. Vertigo. Vertigo.

It is to this cause, exercised indeed in a less degree, that we are to ascribe the dizziness which is felt on looking down a precipice, climbing a tall ladder, or walking over a very narrow bridge, with a roaring torrent below; for in all these cases we are conscious of danger, and lose our firmness in our fear. And that such is the real cause is quite obvious from the fact that those who possess their firmness, and have no apprehension or trembling whatever, have no dizziness: and that we ourselves are able to endure an exposure to the same scenes and the same motion with as great a freedom from it, when habit has given us calmness, and we have no longer any apprehension. So the sleep-walker has been known to tread firmly and fearlessly over planks and precipices, the sight of which has whirled all his brains when awake.

Whence vertigo on looking down a precipice or climbing a ladder.

Vertigo, then, as thus explained, consists in a clonic action of the nervous fibres subservient to the faculty of perception; and lays open to us the three following varieties:

α Undulans. Swimming of the head.	Dizziness with a sense of swimming or undulatory motion.
β Illusoria. Illusory Vertigo.	Dizziness with dimness of sight, and imaginary objects before the external senses.
γ Scotoma. Blind head-ache. Nervous fainting-fit.	Dizziness with blindness and tendency to swoon; often succeeded by head-ache.

Vertigo is not generally an alarming affection, but it is only to be remedied by a particular attention to its cause, and especially the predisposition of the system to a relapse.

Vertigo not generally an alarming affection.

GEN. V. SPEC. I. Dinus Vertigo. Vertigo. Mode of treatment under different causes and circumstances.

If we have reason to suspect congestion or extravasation in the head, bleeding, and especially from the temporal artery, will often afford effectual relief. I have seen a very severe attack of vertigo cease instantly, as by magic, on opening this artery, although not more than a teacup full of blood was drawn from it. Where the stomach has been gorged, an emetic, and afterwards a purgative will prove most effectual; where the cause, on the contrary, is debility or exhaustion, it is best relieved by cordials and a generous diet: and where it is an idiopathic affection of the nervous system, the warm antispasmodics and tonics, with a tonic regimen, will bid fairest to succeed. Such persons will derive great benefit by a change of air, of scene, and of company; by visiting the most quiet of our watering-places, cold bathing, and a cold ablution of the head, or of the whole body every morning. Here also a particular attention should be paid to the state of the bowels, as costiveness is always an exciting cause. During the paroxysm, perfect rest and a reclined position will be always found necessary; and, where there is a tendency to fainting, stimulant odours may be applied to the nostrils, and ether, ammonia, and the volatile fetids to the stomach in draughts of cold spring water.

GENUS VI.

SYNCOPE.

Syncope.

MOTION OF THE HEART AND LUNGS FEEBLE OR IMPERFECT: DIMINISHED SENSIBILITY: INABILITY OF UTTERANCE.

Gen. VI. Origin of the generic term.

SYNCOPE, from *συγκόπτω* "concido", "to fell or cut down", is a neoteric rather than an antique term. It occurs, indeed, among the Greek writers, but rather in the description of battles than of diseases. I cannot find who first introduced it into the medical nomenclature. In Hippocrates the common synonym is leipopsychia, and in Galen apopsychia: but it answers its purpose, and is, in the present day, so generally established, that there is no kind of necessity for exchanging it.

Leipopsychia of Hippocrates.

Apopsychia of Galen.

Cullen's definition inadequate, and why.

Dr. Cullen's definition of the genus is "motus cordis imminutus vel aliquamdiu quiescens". But this is by no means sufficient: for the heart has been sometimes totally void of motion without syncope, as in acrotismus, and especially in the well-known case of Mr. John Hunter, which we have noticed under that division. The leipothymia of Sauvages and other nosologists is only syncope in its first attack or mildest degree. Its character is "subitanea et brevis virium dejectio, superstite pulsûs vigore, et cognoscendi facultate". The pulse is, perhaps, always affected in some measure; but in slight cases it still retains a certain degree of power: the perception rarely fails altogether: but the voice seems to be uniformly lost.

Leipothymia of Sauvages what.

The species in some systems of nosology are very numerous, and unnecessarily multiplied. Out of deference to high and established authorities, the author was induced,

GEN. VI. Syncope. Syncope. in his volume of Nosology, to offer five: but as several of these differ only in cause or some accidental symptom, they may be reduced to the two following, and the accidental differences be regarded as constituting varieties or modifications alone:

1. SYNCOPE SIMPLEX. SWOONING.
2. ——— RECURRENS. FAINTING-FIT.

SPECIES I.

SYNCOPE SIMPLEX.

Swooning.

OCCURRING SUDDENLY AND ACCIDENTALLY, AND CEASING WITHOUT ANY TENDENCY TO A RECURRENCE.

GEN. VI. SPEC. I. Pathological explanation to be collected in a considerable degree from that already offered under vertigo. In vertigo, the defective or irregular action is chiefly confined to the nerves, and particularly to those of perception: in swooning it is sometimes a result of nervous exhaustion as in cases of exquisite pain or torture, whether of body or of mind, but it more commonly originates in the sanguific or digestive organs, though the sentient participate in the affection. Vertigo, as we have already observed, occasionally terminates in swooning; and in like manner swooning is not unfrequently succeeded by vertigo.

Additional illustration. To maintain the faculty of perception clear and true to the impressions that are made on the external senses, we endeavoured to show, under the preceding genus, that the motion of the nervous power which connects it with those senses must be equable and uniform; and to maintain the action of the heart in a firm and regular order, it

To maintain a regular motion in the heart the blood must is necessary that the blood should flow into it in an equal and uniform stream: for if its volume be altered from any cause, whether of obstruction, surcharge, or defi-

ciency, its motion will be checked and enfeebled: the brain and respiratory organs will participate in the debility, and syncope be a frequent result. And hence, we may account for the fainting that frequently takes place on the commencement, and sometimes on the close of venesection. On tying the arm for this purpose, a considerable stream of supply is cut off, and ten ounces of blood flows, in perhaps five minutes, into a bason, which would otherwise have flowed into the heart in the same period of time. The volume of blood is hence diminished, and the heart must collapse or contract itself in proportion. In many habits this is done with great facility: but in others, and particularly where there is a feeble supply of motific or irritative power, the contraction takes places slowly and irregularly, and with a considerable degree of flutter, or, as we have already explained it, clonic spasm; and fainting or a temporary failure of sensation, is the necessary consequence: during which the alternating systole is very feeble, and the blood ceases to flow at the puncture. This effect is ordinarily ascribed to a loss of the stimulus of distention; and there may be some degree of truth in such an explanation. But that there is a something beyond this is certain, because on removing the ligature from the arm this stimulus is once more obtained; for the blood, instead of flowing away at the venous orifice, now takes its proper course, and flows back to the heart. Yet we see almost as often a syncope produced at this moment, and consequently by a renewal of the distention, as by an interruption of it. The fact is, that the heart, which by this time has accommodated itself to the diminished volume of the returning current, has now once more to change its diameter, and to expand itself in proportion to the increased measure and momentum of the inflowing tide. And as a change in its diameter produced a syncope in the former case, a change in its diameter in like manner produces it in the latter.

GEN. VI. SPEC. I. Syncope simplex. Swooning.

flow in an equal and uniform stream.

Whence swooning in venesection as well when the blood first flows from the puncture, as when the ligature is removed.

For the same reason we may see swooning take place when any extensive range of blood-vessels that have been pressed upon by any other means, suddenly acquire a power of dilatation, as when a large cavity is formed in

Whence swooning on opening large abscesses or

GEN. VI. SPEC. I. Syncope simplex. Swooning.

the abdomen by the process of tapping for an ascites, or on opening an extensive abscess in any other quarter *.

on tapping in dropsies.

But the flow of sensorial power from the brain may also be suddenly exhausted, or checked, or perhaps its secretion impaired; and syncope may ensue from this source, the action of the heart being diminished not primarily, but secondarily, or by sympathy with the state of the sensorium. In fainting, from entonic passions or emotions, as a sudden shock of vehement joy, the sensorial power is perhaps abruptly expended, as also in severe pain †. In fainting, under the influence of the atonic passions, as fear or heart-sick grief, this power is unquestionably checked in its regular flow, and probably checked also in its secretion: as we have reason to believe it is where fainting occurs from a repulsion or retrocession of gout, exanthems, or various other diseases. And to the same cause may be referred those cases of swooning, which, in some idiosyncrasies, or indispositions of body, are well known to take place on exposure to particular odours, as those of cheese, apples, or, as we have already had occasion to observe, of roses, lilies, and other fragrant plants. Where it has followed instantly upon acrid poisons, there can be no doubt that these have induced a rigid or entastic spasm upon the muscular fibres of the heart; and, where the poisons are purely narcotic, the living or instinctive stimulus is suddenly extinguished or carried off, and the nervous system becomes an exhausted receiver.

Syncope also if there be not a regular supply of sensorial power. Hence fainting from violent mental emotions and severe pain. Fainting from particular odours in certain idiosyncrasies.

Syncope then, in its simple state, as unconnected with any structural disease of the heart or its adjoining vessels, seems to appear under the following modified forms or varieties:

α Inanitionis Swooning from inanition.	The swooning produced by fatigue, long-fasting, or a sudden and excessive discharge of any fluid, whether natural or morbid, accompanied with

* Meckel, Epist. ad Hallen. Script. Vol. III. Eph. Nat. Cur. Dec. II. Ann. v. Obs. 53.

† Amat. Lusitan. Cent. II. Cur. I. Plater, Observ. II. p. 431.

	a sense of inanition, and great prostration of strength.	GEN. VI. SPEC. I. Syncope simplex. Swooning.
β Doloris. Swooning from acute pain.	Preceded by severe pain or irritation of body, internal, as from poisons, flatulency, or worms; or external, as from wounds or other injuries.	
γ Pathematica. Swooning from mental emotion.	Preceded by an exercise of some sudden and overwhelming passion or emotion.	
δ Metastatica. Swooning from metastasis.	Accompanied with a retrocession or repulsion of gout, exanthems, or other diseases.	

Degree and duration of the paroxysm on what dependent.

The degree and duration of the paroxysm depend upon the peculiarity or the violence of the cause, the extent of the sensorial exhaustion, or the nature of the constitution, and hence must greatly differ in different individuals. In some cases it ceases in a few minutes, and the patient, though incapable of speaking, retains enough of percepton and sensation to be conscious of his own disorder, and to understand what is passing around him. The pressure and irritation of flatulency in dyspeptic and hypochondriacal habits are often sufficient of themselves to produce a fainting of this kind. In other cases the general feeling and understanding fail totally, and the pulse is scarcely perceptible. Occasionally, the sensorial power has been totally as well as suddenly exhausted, and the syncope has run into asphyxy, and even proved fatal.

Sometimes apparent death, which may be mistaken for real.

Exemplified.

M. Portal has hence justly remarked that "we may have apparent death from syncope as well as from asphyxy, and that, from not attending to this, we may mistake, and bury the living with the dead. I have seen, he adds, a man who, after a violent fit of colic, remained for many hours in a state of syncope without pulse, with the colour and coldness of death, and without any respiratory motion of the chest whatever. After some hours of such apparent death he passed a bilious concretion, and the fainting vanished." *

* Mémoires sur la Nature et le Traitement de plusieurs Maladies. Tom. IV. 8vo. Paris, 1819.

GEN. VI. SPEC. I. Syncope simplex. Swooning.

Recovery commonly effected without medical aid, and why.

Process of recovery varies.

When not assisted by medicine the system recovers itself by the gradual accumulation of sensorial energy that must necessarily take place, so long as the living principle continues, during such a state of quietism; aided, unquestionably, by the continual action of the instinctive, or remedial power of nature, which is always aiming to repair what is amiss. The process of recovery, however, varies almost as much as that of sinking. Some revive almost immediately without any inconvenience or sense of weakness whatever: while others improve slowly and almost imperceptibly, and require many hours before they fully regain their self-possession. In various cases the head becomes clear as soon as the pulse becomes regular; while, not unfrequently, the recovery is accompanied with a confusion of ideas, vertigo, and head-ache.

Yet may be aided by medical means.

Remedial process.

As this disease is always attended with an irregularity in the flow of nervous power, and some degree of spasmodic action, entastic or clonic, about the heart, the best remedies we can have recourse to, during the paroxysm, are antispasmodics and stimulants; and those that are the most volatile are the most useful. Hence the advantage of admitting a free current of cold air, sprinkling cold water over the face, and pouring a little of it, if possible, down the throat. And hence, also, the advantage of holding ammonia, the strongest vinegar, or any other pungent odours, to the nostrils. A recumbent position is always adviseable, as most favourable to an equable circulation of the blood; and irritating and warming the extremities by the friction of the hand or the application of rubefacients will commonly be found to expedite the recovery, upon the principle we often had occasion to advert to, that, in a chain of organs united by sympathy or continuity, an impression produced on the one extremity is sure to operate on the other. As soon as the patient is capable of swallowing, some spirituous cordial, as a glass of wine, brandy and water, fetid tincture, or the aromatic spirit of ammonia or of ether, should be administered; and the occasional cause should be sedulously avoided in future.

SPECIES II.

SYNCOPE RECURRENS.

Fainting-Fit.

RECURRING AT PERIODS MORE OR LESS REGULAR; OCCASIONAL PALPITATION OF THE HEART DURING THE INTERVALS: AND UNQUIET RESPIRATION DURING THE PAROXYSM.

Gen. VI. Spec. II. Commonly a more serious form of disease than the last, as usually dependent upon some structural misaffection of the heart or larger arteries.

THIS is, in most cases, a far more serious form of syncope than the preceding, and is commonly ascribed to some structural disease of the heart or the large arteries that immediately issue from it, as an ossification of the valves, polypous concretions, an enlargement or thickening of the substance of the heart, an accumulation of water in the pericardium, or an aneurism.

Each of these may possibly be a cause in some instance or other; and where, during the paroxysm, the breathing, though feeble, is anxious and obstructed, the face livid, and the patient in the midst of the swoon shows a tendency to jactitation, or an uneasiness on one side or on the other; and, more especially still, where no ordinary exciting cause can be assigned, and it has commonly followed upon some unusual exertion, or hurry of the blood through the lungs, it would be imprudent not to suspect some such lurking mischief.

But not always so: many cases being from slighter causes.

But there are causes of a different and much slighter kind that I cannot avoid believing frequently operate in the production of recurrent syncope, and that, too, with many of the peculiar symptoms just enumerated. And I now allude to any of the ordinary causes of syncope, as set down under the first species, or any other incidental irritation whatever, occuring in a constitution of great mobility and excitability, or where the heart alone, or in conjunction with the whole arterial system, is peculiarly disposed to that irregular and clonic action which we have noticed under the species PALPITATION, and particularly under the first and second varieties.

GEN. VI. SPEC. II. Syncope recurrens. Fainting-fit.

How such causes operate.

In such a frame of body any sudden alarm, a longer abstinence than usual, a fuller dinner than usual, unwonted exercise, and a thousand minute excitements of daily occurrence will often succeed in producing a fainting-fit: and especially where a morbid habit of recurrence has been once established, and there is a predisposition to return. Atonic plethora is another frequent cause in the peculiar constitution we are now considering, and a cause far too liable itself to establish a circle of recurrence, and consequently to give recurrence to the form of syncope before us. There is a singular example of periodic swooning in the Ephemera of Natural Curiosities*, which seems to have been dependent upon this state of body: and another example in which it was evidently produced by a return of the term of menstruation, and became its regular harbinger †.

Periodical swoonings.

Patient's idiosyncrasy to be studied.

In all cases of this kind, therefore, it is of the utmost importance to study minutely the character of the patient's idiosyncrasy and habit, and not to excite any alarm concerning organic mischief, and thus add another excitement to those which already exist, while there is a probability that the affection may be owing to one or other of these lighter and more manageable causes.

Remedial treatment.

In the latter case tonics, cold bathing, equitation, regular hours and light meals will form the best prescription we can lay down. Where we are compelled to suspect some organic impediment or other mischief about the heart, small bleedings that may anticipate the usual time of the return, camphor, nitre, hyoscyamus, and whatever other sedative may be found best to agree with the patient and diminish the rapidity of the circulation, will form the most rational medical plan we can devise; while tranquillity of body and mind, an abstinence from all stimulant foods, and a regular attention to the state of the bowels should form a standard rule for the whole tenour of his life.

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* Dec. II. Ann. I. Obs. 10. † Id. Dec. II. Ann. V. Obs. 58.

GENUS VII.

SYSPASIA.

Comatose Spasm.

CLONIC SPASM; DIMINISHED SENSIBILITY; INABILITY OF UTTERANCE.

Gen. VII. Origin of the generic term.

SYSPASIA, or SYSPASIS from *συσπάω*, "contraho, convello", literally imports convulsion in the popular sense of the term, or, in other words, clonus or agitatory spasm, in combination with a greater or less degree of failure of the sensation and the understanding. The term seems wanted as a generic name for the three following diseases, whose symptoms, and, for the most part, mode of treatment, are so accordant, as to establish the propriety of linking them under a common division:

1.	SYSPASIA CONVULSIO.	CONVULSION.
2.	——— HYSTERIA.	HYSTERICS.
3.	——— EPILEPSIA.	EPILEPSY.

Outline of the pathology given under clonus.

The author has entered so fully into the nature and principle of clonic or agitatory spasm under the genus CLONUS, that a very few remarks will be necessary in explaining the pathology of these three species. They are all of them clonic spasms, as expressed in the definition, but complicated with other morbid affections, and particularly with those of the two preceding genera: for if we combine clonic or synclonic spasm with different modifications of vertigo or syncope we shall produce the three species that are now before us.

In explaining the nature of clonic spasm we noticed the tendency there frequently exists when the uniformity of the flow or secretion of the sensorial power is once interfered with, to alternations of a hurried and excessive, as

Gen. VII. Sypsasia. Comatose spasm.

well as of a restrained and deficient supply, and consequently to an intermixture of constrictive or entastic spasm with clonic or agitatory, of which palpitation, and various other affections of this kind afford perspicuous examples.

Distinctive character of the species that appertain to the genus.

In the diseases immediately before us the proofs of such an intermixture are still more striking; for there is not one of them but evinces an union of both descriptions of spasmodic action in a high, though not an equal degree of vehemence. In convulsion-fit the two kinds of spasm are nearly upon a balance, commonly with a retention of some share of both sentient and percipient power. In hysteria the spastic or entastic action, in its sudden and transient irruptions, is more violent than the clonic, the force exercised at this time is enormous, and there is also, in many cases, a small retention of sensation and understanding. In epilepsy the clonic action is most conspicuous, and the failure of the mental and sentient faculties generally complete.

Pathological principles already advanced applied to the present genus.

Of the essence of the nervous power we have repeatedly stated that we know nothing, for we can trace it only by its effects: but we are compelled to conceive of it as a fine volatile and energetic fluid, not existing out of the animal system, and, therefore formed, and consequently secreted, by some particular organ within it: which organ there can be no difficulty in contemplating as the brain singly, or the brain and nerves jointly, which constitute only different parts of one common apparatus. Admitting, then, the nervous power to be a secreted fluid, like all other secretions, this may be produced in excess or in deficiency, or be imperfectly elaborated, and, however produced, it may be irregularly communicated in its flow, as well by precipitation as by interruption. The means by which these diseased actions take place, we have already touched upon; and have shown that the common causes are sometimes mental, sometimes mechanical, sometimes sympathetic, and sometime chemical, as narcotics and other poisons, and particularly those of repelled eruptions.

Nervous power, how far we are acquainted with it.

A secreted fluid: and hence producible in excess and in deficiency;

by mental, mechanical, sympathetic,

Now it is in persons of relaxed or debilitated fibres that we find these exciting causes chiefly operative. For in

those of high health, full vessels, and a firm constitution, however the circulation may be accelerated, or the nervous power excited, it is rarely that we meet with clonic spasms, or indeed, spasms of any kind: or, at least, we meet with a far less tendency to such abnormities, than in persons of lax and debilitated fibres, possessing, necessarily, more mobility, or facility of being put into new actions from the very quality of debility itself.

GEN. VII. Syspasia. Comatose spasm.

and chemical causes.

These causes, where chiefly operative.

Hence the common predisposition, weakness, especially of the nervous system: but the peculiar effects modified by other circumstances, and hence the different species before us in different individuals.

The common predisponent, then, is weakness, particularly of the nervous system; and the common excitement, irritation. The peculiar effect must, however, be modified by the idiosyncrasy or peculiarity of the constitution, or of collateral circumstances, by which it may be influenced at the time. And hence the very exciting cause that in one individual may produce hysteria, in another may produce epilepsy, and in a third the more fugitive and less impressive attack of syspasia, as convulsion *.

Idiosyncrasy rarely within medical control: but not so the collateral circumstances.

The nature of the idiosyncrasy, or, more particularly, of the individual constitution, is rarely within our control; but the collateral circumstances are often before us: they constitute the occasional cause of the disease, and should form a prominent point in our attention to its progress.

Overdistended vessels a common cause of weakness, whence plethora a frequent occasional cause: and may lead under different circumstances to a fit of hysteria:

There are, perhaps, few more common causes of weakness than over-distended vessels; and hence plethora is a frequent occasional cause of each of the diseases belonging to the genus before us, the species actually produced depending, as just observed, upon the influence of other circumstances. Thus, if such plethora take place in a young woman of eighteen or nineteen, whose menstrual flux has been accidentally suppressed or retarded, it is most probable, if an irregularity in the nervous system be hereby excited, that such an irregularity will lead to a fit of hysterics rather than to one of convulsion or epilepsy, since we shall find, as we proceed, that this species of spasm is peculiarly connected with an irritable and especially an orgastic state of the genital organs.

* Pritchard on Nervous Diseases, p. 189.

GEN. VII. Syspasia. Comatose spasm.

On the contrary, if the plethora produce chiefly a distention of the vessels of the brain, epilepsy is more likely to be the result; in other words, that form of spasmodic action in which the sensation and the intellect suffer more severely than in either of the others. While, if the plethora be general, we have reason to expect that the spasmodic effect will be general also, or, in other words, take the form of convulsion in which no single organ is tried more than another. Yet plethora, in a firm and vigorous frame, is seldom found to produce either of these affections, for the resistance of the coats of the blood-vessels is here sufficient to counter-balance the impetus of the sanguineous fluid, and, consequently, to prevent an over-distention. And hence, again, we see in what manner debility becomes a remote or predisponent cause of the diseases under our consideration.

or of epilepsy;

or of convulsion.

Why plethora in robust persons less frequently produces these effects.

Plethora in one sense a mechanical stimulus.

Plethora thus acting by over-distention may be regarded as a mechanical stimulus, upon the removal of which, as upon the removal of other mechanical stimuli, the disease will cease. Venesection is the most direct means of such removal; but it labours under the inconvenience of being only a temporary remedy. It takes off the occasional cause, but by adding to the general debility it gives strength to the predisposing cause.

More direct mechanical stimulants.

The more direct mechanical stimulants are sharp-pointed ossifications formed in the membranes of the brain, or arising from the internal surface of the cranium; splinters of a fractured cranium, or the introduction of some wounding instrument.

Mental causes.

The occasional causes resulting from mental emotions, we have already been called to notice more than once; as also to show that while some of these appear to act by instantaneously exhausting the sensorial organ of its living principle, others operate by giving a check to the sensoral secretion. These modes of action are indeed opposite, but the result, which is a depletion of the nervous apparatus, is the same. And as in weakly or relaxed habits there is in every organ a greater mobility, or facility of passing from one state of action to another, than in the firm and robust, we see also

Why in irritable and mobile habits the temper as fickle as the fibres.

why the former should be not only more subject to spasmodic actions from mental emotion, but to sudden changes of mental emotion, and, consequently, to caprice and fickleness of temper. GEN. VII. Syspasia Comatose spasms.

SPECIES I.

SYSPASIA CONVULSIO.

Convulsion.

MUSCULAR AGITATION VIOLENT; TEETH GNASHING; HANDS FORCIBLY CLENCHED: TRANSIENT.

GEN. VII. SPEC. I. Synonyms.

IN defining CONVULSION, most of the nosologists represent the faculties of the mind and the external senses as still sound and unaffected. Sauvages says, "superstite in paroxysmis animæ functionem exercitio". Vogel distinguishes it, "cum integritate sensuum". Dr. Cullen is more exact than either of these. His words are, "musculorum contractio clonica abnormis, *citra sopo-rem*"; "an irregular clonic contraction of the muscles, bordering on but short of lethargy". The influence of the disease on the sensation and perception vary considerably in different cases, but so far as I have seen, the sensibility is always in some degree diminished, and I have hence ventured to introduce this feature into the generic definition as a pathognomic symptom.

Whether perception exists during the paroxysm.

There are also some other differences that occur in the character of the disease in its different attacks, and which have been laid hold of as the ground-work of very numerous subdivisions by many nosologists. For these differences we cannot always account: but in general they will be found to depend upon the idiosyncrasy, habit, or stage of life in which the disease makes its appearance, and to give rise to the following varieties:

α Erratica. Migratory convulsion. — The convulsion shifting irregularly from one part to another.

Gen. VII. Spec. I. Syspasia Convulsio. Convulsion.

β Universalis. General convulsion.	The convulsion attacking every part simultaneously; occasionally protracted in its stay.
γ Recurrens. Recurrent convulsion.	The convulsive paroxysm returning after intervals more or less regular.
δ Ejulans. Shrieking convulsion.	The convulsion accompanied with shrieks or yells, but without pain.
ε Puerperalis. Puerperal convulsion.	Occurring during pregnancy or labour, usually with coma, and stertorous breathing.
ζ Infantilis. Infantile convulsion.	Occurring during infancy; preceded by twitchings or startings, and accompanied with a blueness about the eyes and upper lip.

α S. Convulsio erratica. Migratory convulsion.

In the FIRST or MIGRATORY VARIETY, the convulsion travels, in some instances, so completely from organ to organ, and from one set of muscles to another, as to make an entire circle.

β S. Convulsio universalis. General convulsion.

In the SECOND or UNIVERSAL VARIETY, the convulsion is often accompanied with a peculiar kind of percussion or hammering of one limb against another, or against some other part of the body, resembling the malleation we have already had occasion to describe, and constituting the MALLEATIO of some authors.

γ S. Convulsio recurrens. Recurrent convulsion.

Hieronosus, or morbus sacer.

In the RECURRENT VARIETY, the intervals are often very irregular; but the ordinary return, where any thing like a regular period is established, is menstrual or lunary. To this, as also to the preceding, many writers have applied the name of HIERONOSUS or MORBUS SACER; which by others, as we have observed above, has been limited to some modifications of chorea.

δ S. Convulsio ejulans. Shrieking convulsion.

In the FOURTH or SHRIEKING VARIETY, the muscles of respiration, and especially those of the larynx, appear to be chiefly affected: and the shrill sounds or yelling

to which it gives rise, proceed rather from an involuntary motion of these organs than from any greater degree of pain that is suffered under this form than under any other.

Gen. VII. Spec. I. ε S. Convulsio ejulans. Shrieking convulsion.

In PUERPERAL CONVULSION, the irritation is supposed by Dr. Bland to derive no peculiar character from the state of the body at the time. But it is impossible to shut our eyes to the close and active sympathy which exists between the sexual organs and the sensorium, and which is peculiarly striking in hysteria; nor to the distinctive symptoms which take place in convulsion from this cause; in which there is a greater tendency to oppression in the head than in any other modification whatever, the breathing is stertorous, and the spastic action peculiarly violent; insomuch, that were it not that the head seemed first affected, we might resolve the oppression into the vehemence and duration of the entastic struggle. Convulsions of this kind occur during pregnancy, in the midst of labour, or immediately afterwards: they rarely, however, take place before the sixth month. Yet, if the irritation were not of a particular kind, we might rather expect it on the first turgescence of the uterus. But we shall have occasion to recur to this subject under the ensuing Class.

ζ S. Convulsio puerperalis. Puerperal convulsion.

In INFANTILE CONVULSION, the mobility of the frame is impressively conspicuous. The clonic motions are exquisitely rapid, and the fingers work and the eye-lids nictitate with a quiver that it is often difficult to follow up. This constitutes the ecclampsia of Sauvages. In the subsequent stage of teething, as the irritative fibre is somewhat firmer, the clonic vibration is rarely so rapid. Antecedently to the time of teething, the usual causes of excitement are retained meconium, flatulency, and acrimonious food*.

η S. Convulsio infantilis. Infantile convulsion.

The ordinary excitements of convulsion, however, operate at all periods of life. They are often concealed, but are those of clonic spasm generally. They consist not

Ordinary excitements:

* Baumes.—Des Convulsions de l' Enfance, de leur Cause, et de leur Traitement, &c. 8vo. Paris, 1789.

GEN. VII. SPEC. I. ζ S. Convulsio infantilis. Infantile convulsion.

unfrequently, as we have already observed, in pressure or other irritation, from a deformity or some spicular node within the cranium; and are said by Desessarts * to occur most frequently in those whose sculls are peculiarly large, or, in the language of Morgagni †, are nearly cubical in the occipital region.

structural irritations:

Pressure, however, or congestion in the brain from whatever cause, is an occasional source

mental emotions:

of this complaint. And hence convulsion is a frequent result of severe fright, or any other violent agitation of the

suppressed evacuations or exanthems.

mind. And, like several of the species we have just noticed, it is a frequent result of some suddenly suppressed natural or morbid discharge, or suddenly repelled complaint affecting a remote organ. It has hence appeared on suppressed menstruation, suppressed flow of milk, leucorrhœa or lochia; on suppressed dysentery ‡, or the suppressed discharge from an old ulcer §. And it has followed, in like manner, on repelled gout, exanthems, and cutaneous eruptions; even on a sudden cure of the itch, where it has been of long standing and has formed a chronic irritation. The usual causes in pregnancy and infancy we have noticed above.

Narcotic poisons,

Convulsions are also frequently produced by many of the narcotic poisons in a certain degree of strength or activity, and a certain state of the constitution. For if the dose be very large, or the system much debilitated at the time, the irritability will be entirely destroyed, and death will often ensue instantaneously, without any struggle whatever. Thus the distilled water of the leaves or ker-

as prunus Lauro-cerasus;

nels of the prunus *Lauro-cerasus*, under different circumstances, will produce both these effects; as will also the distilled water of the kernels of various other fruits possessing prussic acid, as those of the black cherry and bitter almond tree; and hence the prussic acid itself. And we may hereby understand the remark of Sir Hercules

* Journ. de Med. XLVII. 114.

† De Sed. et Caus. Morb. Ep. IX. 9.

‡ Hoefner, Baldinger N. Mag. B. VI. p. 323.

§ Gruellmann, Diss. Observ. de usu cicutæ Goett. 1782. Ephem. Nat. Cur. Dec. III. Ann. II. Obs. 74.

Gen. VII. Spec. I. ζ S. Convulsio infantilis. Infantile convulsion.

Langrishe, that one ounce of laurel-water will occasion more violent and stronger convulsions than five or six ounces. The dose of this water given, by way of poison, to Sir Theodosius Boughton, was a draught phial full, and, consequently, about an ounce and a half. The struggling fit, in this case, began in a minute and a half, or two minutes, after it was swallowed *; it continued for about ten minutes, when he expired.

The spasmodic action produced by these plants is chiefly clonic, which, in effect, is the ordinary action with which life ceases: but there are others that render it of a mixed character, the entastic alternating with the clonic; and some in which the rigid or entastic power considerably predominates, as in the poisonous juice of the upas tiente, which, though with occasional relaxations, fixes the muscles as rigidly as in tetanus, and continues the rigidity till the patient dies.

upas tiente.

A paroxysm sometimes sudden; sometimes ushered by precursive signs.

In ordinary cases, however, the mode of attack and the progress of the paroxysm exhibit a considerable variation. Sometimes the assault is sudden and without any warning, but more generally there are a few precursive indications, and especially in patients who are subject to returns of it; such as a coldness in the extremities with a dizziness in the head, and floating spectra before the eyes, or a flatulent uneasiness in the bowels, and a tenseness in the left hypochondrium. In other cases the patient complains of tremours in different muscles, and a cold aura creeping up the back which makes him shiver.

Diagnostics and description.

The struggle itself I have already said, varies equally in its extent and violence, and I may add in its duration. The muscles are alternately rigid and relaxed, the teeth gnash and often bite the tongue, the mouth foams, the eyelids open and shut in perpetual motion, or are stretched upon a full stare, while the protuberant balls roll rapidly in every direction: the whole face is hideously distorted. The force exerted is enormous, so as frequently to shake

* Gurney's Trial of John Donellan, Esq. for the wilful Murder of T. E. A. Boughton, Bart. folio, pp. 18, 19.

GEN. VII. SPEC. I. ζ S. Convulsio infantilis. Infantile convulsion.

the entire room, and overpower the strength of six or eight attendants. In some instances it has been so violent as to break a tooth, and even fracture a bone *. When the lungs are much oppressed in the course of the contest, the lips, cheeks, and indeed the entire surface, is dyed with a dark or purple hue.

Ceases suddenly: or continues for hours: or returns at uncertain periods.

The paroxysm will sometimes cease in a few minutes, but occasionally lasts for hours, and, after a short and uncertain period of rest, returns again with as much violence as before; a fact peculiarly common to puerperal and infantile convulsions. Great languor commonly succeeds; sometimes head-ache, vertigo, and vomiting, occasionally delirium: but not unfrequently, and especially in infants, there are no secondary symptoms whatever.

Medical treatment of two kinds, as respecting the paroxysm and the interval.

The treatment of convulsion must apply to the paroxysm itself, and to the state of the constitution which gives a tendency to its recurrence.

Venesection generally useful,

If it proceed from a narcotic or any other poison introduced into the stomach, much benefit may often be obtained from the stomach syringe, employed by Mr. Jukes, of which we have given a brief description in a preceding volume †. If the poison be in a liquid form, it may hereby be considerably pumped up in its essential state, while the remainder, or the whole, if it be a powder, may be diluted and pumped up afterwards.

As there is danger from congestion in the brain, venesection is, in most cases, a good measure of caution, and, in many instances, is absolutely necessary: and hence, where plethora has preceded, and has threatened to become a cause, the disease has often been prevented, and sometimes effectually cured, by a spontaneous hemorrhage from the nose, the ears, or some other organ. But we have often had occasion to observe that, in weak and relaxed habits, bleeding, if frequently repeated, increases the tendency to plethora; and, on this account, how necessary soever at the time, it should be employed with caution, and persevered in with reluctance.

but in particular habits to be employed with great caution.

* Eph. Nat. Cur. Dec. II. Ann. 7. † Vol. I. p. 92.

Brisk cathartics introduced into the stomach, if possible, and where this cannot be accomplished, in the form of an injection, lower the morbid distension almost as effectually, and in some instances directly remove from the system the principal fomes of the complaint. Emetics are of more doubtful effect: they also may, occasionally, carry off the actual cause of irritation, and by powerfully determining to the surface, make a favourable diversion of action. But in many cases of debility they have evidently increased the violence and prolonged the duration of the fit. The authorities, however, in their favour, are numerous and highly respectable. Le Preux * strongly recommends them in early infancy: and Hoeffner asserts that he has found them highly serviceable where the irritation proceeded from dysentery †. Schenck tells us that he employed them generally with considerable success, and preferred the preparations of copper, and particularly the verdigris, to any other emetic, from their rapidity of action ‡. Antispasmodics are certainly entitled to our attention, and often succeed in allaying the irregular commotion. Those most commonly resorted to are ammonia, ether, musk, camphor, and valerian. The empyreumatic oils, both animal and vegetable, seem to have fallen as much below their proper value in the present day as they were once prized above it. And the same may be observed of the volatile fetids generally, as fuligo, assafœtida and chenopodium *Vulvaria* or stinking arach: the last of which, however, under the older name of atriplex *fœtida*, seems to have been a favourite with Dr. Cullen.

Cathartics always useful.

Emetics: have often proved injurious.

Antispasmodics often succeed.

Empyreumatic oils.

Volatile fetids.

Chenopodium Vulvaria.

Atriplex fœtida.

It is not very easy to explain the operation of antispasmodics of this kind. Dr. Cullen refers it to their volatility alone, and hence concludes that they are useful in proportion as they are volatile: which is, in fact, to regard them in the light of stimulants. But beyond this they seem to possess a sedative power which probably resides in their fetor. Where flatulency or some other misaffec-

Their mode of operation.

* Diss. An. Convulsionibus recens natorum Vomitoria? Paris, 1765.

† Balding. N. Mag. B. VI. 323.

‡ Lib. I. Obs. 244.

GEN. VII. SPEC. I. Syspasia Convulsio. Convulsion. Treatment. Carminatives. Narcotics.

tion of the stomach is the exciting cause, as is frequently the case in infancy, after opening the bowels, the warmer carminatives of anice, mint, ginger, and cardamoms will often be found sufficient; and where these fail, recourse has been had to opium, hyoscyamus, belladonna, and sometimes St. Ignatius's bean, or M. Wedenberg's favourite medicine in this disease, the extract of stramonium *.

Cold and heat.

Cold and heat have also been very frequently resorted to as powerful antispasmodics, and, in many cases, with considerable success. Heat appears to act by a double power, and especially when combined with moisture, with which it is always most effectual. It both relaxes and stimulates: and is hence admirably calculated to harmonize the two alternating and contending states of a morbid rigidity and a morbid mobility, on which the disease depends, and consequently to restore a healthy equipoise of action. On this account we find warm bathing, and especially in infantile convulsions, of great benefit. It ought not to be forgotten, however, that both effects, as well the stimulating as the relaxing, have a considerable tendency to exhaust and debilitate, and hence the warm-bath must not be frequently repeated.

Action of heat.

Action of cold.

The immediate effect of a sudden application of cold, whether by a blast of air, or by an affusion of water, is a general shuddering, a spasmodic contraction of the entire skin. And hence, where cold, applied in this manner, takes off either clonic or entastic spasm, it is by a revulsive power; by a transfer of the spasmodic action from a particular organ or set of organs, to the surface of the body generally; in the same way as blistering the neighbourhood of an inflamed organ takes off the primary inflammation by a transfer of the inflammatory action to the part where the blister is applied. If the cold excite a general reaction, and the shuddering be succeeded by a glow, it becomes a direct and very powerful tonic: and on both these accounts is a remedy highly worth trying in hyste-

* Dissertatio Medica de Stramonii usû in Morbis Convulsivis. 4to. Upsaliæ.

rics, convulsions, and even those cases of epilepsy in which a suspicion of some structural cause of irritation within the cranium does not form a bar, by prohibiting every thing that may increase the impetus of the blood.

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In the convulsion-fit of infancy, the affusion of cold-water, so far as I have seen, may be much oftener resorted to with perfect safety than the fears of mothers will allow; and be found much more successful in a hot close unventilated nursery, than the more popular prescription of a warm-bath. And where I have not been able to proceed thus far, and the warm-bath has been tried repeatedly in vain, I have frequently succeeded by taking the little infant in my arms, and exposing him naked, or nearly naked, for a few moments to the air of the window, thrown open to allow it to blow upon him. The great diminution of sensibility which prevails at such a time prevents all danger of catching cold; while, on the contrary, the little patient is usually revived by the sudden rush of the external air, and the fit, in many cases, ceases instantly.

often useful in infantile convulsions.

Illustrated.

Cold-bathing, when not prohibited by any other complaint, will also be found a useful tonic in the intervals of the attacks, and may conveniently be employed in conjunction with internal medicines of the same character *. Of these the metallic salts and oxydes are chiefly to be depended upon, and especially those of iron, copper, arsenic, silver, and zinc. Zinc has had by far the greatest number of advocates, and is generally supposed to have succeeded best in the form of its white oxyde or flowers, ten or twelve grains of which are usually given to an adult in the course of twenty-four hours. Mr. Dugaud increased the proportion to fifteen grains †; and Mr. Bell, at length, prescribed not less than ten grains at a time, repeated three times a-day ‡. In the hands of the present author zinc has proved more salutary in the form of its sulphate, which has not unfrequently succeeded where the oxyde

In the intervals cold-bathing:

metallic oxydes.

Zinc how far useful and in what forms.

* Y. W. Wedel. Liber de Morbis Infantum. Cap. xiii.

† Edin. Med. Comment. v. 89. ‡ Id. i. 120.

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has failed; the usual proportion he has employed being a grain three times a-day given in the emulsion of bitter almonds. Where silver has been made choice of, the usual preparation has been its nitrate, and the dose has begun with a grain given four or five times a-day in the shape of a pill, and gradually increased to eight or ten grains, or as much as the patient's stomach will bear.

All improved by a combination with camphor: which is often highly useful even alone.

The virtue of all these, however, seem considerably improved by a combination with camphor, which has often been found advantageous even alone. "In spasmodic, or convulsive affections," says Dr. Cullen, "it has been of service, and even in epilepsy it has been useful. I have not indeed known an epilepsy entirely cured by camphor alone; but I have had several instances of a paroxysm, which was expected in the course of a night, prevented by a dose of camphor exhibited at bed-time; and even this when the camphor was given alone; but it has been especially useful when given with a dose of cuprum ammoniacum, or white vitriol, or of the flowers of zinc."*

Vegetable tonics.

The vegetable tonics are little to be depended upon. The bark recommended by Dr. Home, Sumeire, and many other distinguished writers, is rarely of use except where the paroxysm is periodical: and the cardamine *pratensis* (lady-smock), sempervivum *tectorum* (house-leek), and viscus *quernus* (missletoe) are hardly worthy of notice in the present day, notwithstanding the specific virtues they were supposed to possess formerly. The cardamine, the σισύμβριον ἕτερον of Dioscorides, is of ancient celebrity, and in modern times has been warmly extolled by the commanding authorities of Mr. Ray, Sir George Baker, and Dr. Home; the second of whom, as was noticed under the head of chorea, declares himself to have succeeded in its use, not only in cases of convulsion, but of all clonic spasms whatever, and this, too, when almost every other medicine had failed †.

Cardamine pratensis.

Sisymbrium of Dioscorides, unduly praised by high authorities.

Sempervivum tectorum, or house-leek.

The house-leek was employed in the form of an ex-

* Medical Transactions. Vol. I. Art. XIX.

† Auserl. Abhandlundlung. für Pract. Aerzte. B. I. 13.

pressed juice intermixed with an equal quantity of spirit of wine which gives a white coagulum resembling creme of fine pomatum, that has a weak but penetrating taste, and was supposed, from its ready evaporation, to contain a considerable portion of volatile alkaline salt. Pereboom * applauds its tonic and antispasmodic virtues in this state, and for further instances of its fancied power the reader may consult the German Journals of Natural Curiosities. The missletoe has rarely been employed in our own country, except by Dr. Home, who thought he found it serviceable; though it is chiefly indebted for its fame as a specific in convulsions, to the practice and writings of Colbatch †. It has been given in powder, infusion, and extract.

SPEC. VII. SPEC. I. Syspasia Convulsio. Convulsion. Treatment.

Viscus quernus, or missletoe.

SPECIES II.

SYSPASIA HYSTERIA.

Hysterics.

CONVULSIVE STRUGGLING, ALTERNATELY REMITTING, AND EXACERBATING; RUMBLING IN THE BOWELS; SENSE OF SUFFOCATION; DROWSINESS; URINE COPIOUS AND LIMPID; TEMPER FICKLE.

HYSTERIA, from ὑστέρα, "the uterus or vulva", or more correctly "viscus posterius vel inferius", evidently imported in an early period of medical science, some misaffection of the womb or other sexual organ: and hence hysteria, among the Greeks and Romans, was also a term by which female midwives were denominated, or those who especially attended to affections of the hysteria or

GEN. VII. SPEC. II. Origin of generic term.

* N. Act. Cur. VII. Obs. 4.

† See also Diss. sur la Gui de Chêne, Remède Spécifique pour les Maladies Convulsives. Paris, 1719.

GEN. VII. SPEC. II. Syspasia Hysteria. Hysterics.

womb. The Latin term uterus, although it approaches it in sense and sound, is altogether of a different origin. For this has a direct reference to the use and figure of the uterus as a single organ, and is an immediate derivation from *uter*, a bag or bottle.

Usually though not always connected with a morbid condition of the uterus.

With a morbid condition of this organ, indeed, hysteria is in many instances very closely connected, though it is going too far to say that it is always dependent upon such condition: for we meet with instances occasionally in which no possible connexion can be traced between the disease and the organ; and sometimes witness it in males as decidedly as in females.

Often confounded with hypochondrism.

It has been contended by various writers, that in this last case, the disease ought to be called hypochondrism, the HYPOCHONDRIAS of the present work; and that hysteria and hypochondrias are merely modifications of a common complaint. Nothing however, can be more erroneous. These two diseases have often a few similar symptoms, and more particularly those of dyspepsy; but they are strictly distinct maladies, and are characterised by signs that are peculiarly their own.

Distinctive characters.

The convulsive struggling paroxysms, the sense of a suffocating ball in the throat, the fickleness of temper, and the copious and limpid urine, which are pathognomic to hysteria, have no necessary connexion with hypochondrias, and are never found in this disease when strictly simple and idiopathic. While, on the contrary, the sad and sullen countenance, the dejected spirits, and gloomy ideas that characteristically mark hypochondrias, have as little necessary connexion with hysteria, and are in direct opposition to its ordinary course. Hysteria is strictly a corporeal disease, hypochondrias a mental, though it commonly originates in corporeal organs, but organs that have a peculiar influence upon the mental faculties, and has not established itself till these participate in the morbid action. Hysteria is a disease of the irritative fibres, hypochondrias of the sentient: Hysteria is a disease of early life, hypochondrias of a later period. Both, however, are diseases of a highly nervous or excitable temperament, and, as such, may co-exist in the same individual: but so

also may vertigo or cephalæa with either of them; which would nevertheless continue to be regarded as distinct diseases, notwithstanding such an incidental conjunction. And hence Mieg *, and various other established writers † upon the subject have not incorrectly, though perhaps unnecessarily, treated of the disorder before us under the two divisions of male and female hysteria, hysteria virorum, or *masculina*, and hysteria *fœminina*. Swediaur, who affirms that man may labour under the hysteric passion as well as women, arranges this and hypochondrism as distinct species of a common genus, to which, with his extravagant fondness for long Greek terms, he has given the name of *hyperkinesia*.

GEN. VII. SPEC. II. Syspasia Hysteria. Hysterics.

Hence the hysteria masculina of Mieg as distinguished from h. fœminina.

Hyperkinesia of Swediaur.

Hysteria, like all other clonic affections, shows itself most frequently in mobile and irritable temperaments, and particularly during that period of life in which irritability is at its highest tide, as from the age of puberty to that of thirty-five years, seldom appearing before the former, and rarely after the latter of these terms. The common occasional causes of convulsion, which we have already described, are also those of hysteria; and hence, acrimonies of the stomach, or other abdominal organs, mental emotions, plethora, and particularly turgescence of the sexual region, are among the most frequent; on which account, we are told by Forestus‡, and Zacutus Lusitanus§, that one of the most common causes of hysteria in males is a retention of semen, as one of its surest cures is an excretion.

Period of life and temperament in which hysteria mostly appears.

Occasional causes.

As every thing, moreover, that disturbs the uniform current of the nervous fluid, or the ordinary diameter of the blood-vessels or cavity of the heart, becomes a powerful irritant, we may also see why this disease should occur on debilitating, and especially sudden evacuations, and be at no loss to account for its appearing on excessive as well as on suppressed menstruation, and consequently in leu-

* Epistolæ ad Hallerum scriptæ, No. v.

† Eph. Nat. Cur. Dec. II. Ann. IV. Obs. 18, 61. Traité Nouveau de Médicine, &c. Lions, 1684.

‡ Observ. et Curat. Medic. Libr. XXVIII. Obs. 29, 33.

§ De Praxi Admirandâ, Libr. II. Obs. 85.

Gen. VII. Spec. II. Syspasia Hysteria. Hysterics.

corrhœa. And as the sexual organs lose much of their orgasm during the period of parturition, we may also see why the disease should attack barren rather than breeding women, particularly young widows, who are cut off from the means of exhaustion they formerly enjoyed; and, more especially still, those who are constitutionally inclined to that morbid salacity, which has often been called nymphomania, and, in the present work, will be found under the genus LAGNESIS.

Pathology.

I have already endeavoured to show by what means, in a habit of great nervous irritability, both clonic and entastic or rigid spasms are produced; and the disposition there frequently exists for them to pass into each other or to alternate in rapid succession. And we have also seen that the former is most predominant in laxer, and more mobile, and the latter in firmer and more vigorous constitutions. There is no frame, however, that may not become a prey to spasmodic action of some kind or other, and hence, there is no frame that may not become a prey, under particular circumstances, to the species of spasmodic action we are now describing. These circumstances are very generally concealed from us; but we uniformly perceive that the rule we have now adverted to holds true; and that the hysteric spasms will assume more or less of a clonic, or of a spastic character, in proportion as the individual is of a more relaxed or a more vigorous make. And hence the most violent, though the least common, instances of hysteric struggle that occur to us, are in young women of the most robust and masculine constitution.

Why sometimes of a clonic character and sometimes of a spastic. Hence the last most common to robust constitutions.

Paroxysm generally without any previous warning: sometimes precursive signs. Signs described.

The paroxysm often takes place without any previous warning or manifest excitement whatever, and especially where it has established itself by a frequency of recurrence. Occasionally, however, we have a few precursive signs which rarely show themselves in vain: as a sense of nausea or sickness, flatulency, palpitation of the heart, depression of spirits, and sudden bursts of tears without any assignable cause, showing a disturbance in the secretion, or distribution of the nervous power. The fit soon

succeeds with a coldness and shivering over the whole body, a quick fluttering pulse, and an acute feeling of pain in the head as though a nail were driven into it. The flatulency from the stomach or colon rises in the sensation of a suffocating ball into the throat, and forms what is known by the name of globus hystericus. The convulsive struggle now commences, which in women of very mobile fibres is sometimes very feeble, the relaxant alternations prevailing over the contractile: but in other cases is prodigiously violent, evincing during the contractions a rigidity as firm as in tetanus, and a force that overcomes all opposition. The trunk of the body is twisted backward and forward, the limbs are variously agitated, and the fists are closed so firmly that it is difficult, if not impossible, to open the fingers; and the breast is violently and spasmodically beaten. An equal spasm takes place in the sphincter ani; so that it is often found impracticable to introduce a clyster pipe; and the urine discharged, though copious, is colourless. The muscles of the chest and trachea are agitated in every way, and hence, there is an involuntary utterance of shrieks, screams, laughing, and crying, according to the direction the spasm takes, sometimes accompanied with, or succeeded by a most obstinate and distressing fit of hiccough. When the fit ceases the patient appears to be quite spent, and lies stupid and apparently lifeless. Yet in an hour or two, or often much less, she perfectly recovers her strength, and has no other feeling that that of a general soreness, and perhaps some degree of pain in the head. It is rarely, indeed, that an hysteric fit becomes dangerous; though it has in a few instances terminated in epilepsy or insanity.

GEN. VII. SPEC. II. Syspasia Hysteria. Hysterics.

Commencement and progress of paroxysm.

Sphincter ani often impervi-ously contracted.

Whence shrieks, screams, and fits of laughing. Hiccough.

Termination of the paroxysm.

The definition asserts that the temper is fickle; this is not to be wondered at; for, in the hysteric temperament, the irregular and clonic flow of the irritative fluid is communicated, by sympathy, to all the sensorial fluids: and in consequence the mind is as unsteady as the muscles: "and from hence," observes the sagacious Burton, who has painted strongly, but from the life, "proceed a brutish kind of dotage, troublesome sleep, terrible dreams, a fool-

Fickleness of temper how accounted for.

Description of the hysteric temperament.

GEN. VII. SPEC. II. Sysposia Hysteria. Hysterica.

ish kind of bashfulness in some, perverse conceits and opinions, dejection of mind, much discontent, preposterous judgement. They are apt to loathe, dislike, disdain, to be weary of every object. Each thing almost is tedious to them. They pine away, void of counsel, apt to weep, and tremble, timorous, fearful, sad, and out of all hopes of better fortunes. They take delight in doing nothing for the time, but love to be alone and solitary, though that does them more harm. And thus they are affected so long as this vapour lasteth; but by and by they are as pleasant and merry as ever they were in their lives; they sing, discourse, and laugh in any good company, upon all occasions. And so by fits it takes them now and then, except the malady be inveterate, and then it is more frequent, vehement, and continuate. Many of them cannot tell how to express themselves in words, how it holds them, what ails them. You cannot understand them, or well tell what to make of their sayings."*

Mode of treatment.

The mode of treatment bears so close a resemblance to that for the preceding species that it will be unnecessary to enlarge upon it. Pungent applications may be applied to the nostrils, or round the temples, or the face and neck may be sprinkled or dashed with cold water during the paroxysm, and warmth and the friction of the hand be applied to the feet. The peristaltic action of the bowels should be increased, which can only be done by stimulant and cathartic injections, if the contraction of the sphincter ani will allow them to pass.

Chiefly to be directed to the intervals.

Our chief attention, however, should be directed to the intervals. And here the first recommendation is, sedulously to avoid every remote or exciting cause. If the

Mis-menstruation to be corrected. Plethora.

menstruation be in a morbid state, this must be corrected as soon as may be, concerning which, however, we shall have to speak in the ensuing class. If plethora be a striking symptom, the lancet should be applied to. In robust and vigorous habits we may bleed freely and have nothing to fear, but in loose and relaxed constitutions far more

* Anat. of Melancholy. Part i. Sec. iii. 2. 4.

caution is necessary, as has been already explained under CONVULSIO.

GEN. VII. SPEC. II. Syspasia Hysteria. Hysterics.

In this last state of body tonics should also be had recourse to, and many of the warmer sedatives and antispasmodics as assafœtida, camphor, most of the verticillate plants, and cajeput, which was a favourite remedy with Mieg*. Valerian has often proved serviceable, but is rarely prescribed in sufficient quantity to produce any good effect. "It seems," says Dr. Cullen, "to be most useful when given in substance and in larger doses. I have never found much benefit from the infusion in water †." The ammoniated tincture of the London College, however, is an excellent form: but even here the quantity of the root employed should be double what is prescribed. The cinchona may be usefully united with valerian, but does not seem to be of much benefit in this disease by itself.

Tonics, aromatics, and antispasmodica.

Opium is a doubtful remedy: where the precursive signs are clear it will often allay the irritation, and thus prove of great value. But it so frequently produces head-ache, and adds to the constipation, that it is rarely trusted to in the present day. When resorted to, it is best combined with camphor.

Treatment.

Where the disease occurs in the bloom of life, and there is reason to apprehend the ordinary orgasm of this age to be in excess, the surest remedy is a happy marriage.

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* Epist. ad Haller. ut suprà No. v. † Mat. Med. Part II. Ch. VIII.

SPECIES III.

SYSPASIA EPILEPSIA.

Epilepsy. Falling-sickness.

SPASMODIC AGITATION AND DISTORTION, CHIEFLY OF THE MUSCLES OF THE FACE, WITHOUT SENSATION OR CONSCIOUSNESS; RECURRING AT PERIODS MORE OR LESS REGULAR.

Gen. VII. Spec. III. Origin of the generic term.

THE Greek physicians gave the name of EPILEPSY, from ἐπιλαμβάνομαι, to the present disease from its "sudden seizure or invasion," which is its direct import: and as the violence of passion or mental emotion, to which the Roman people were accustomed to be worked up in their COMITIA, or popular assemblies, from the harangues of their demagogues, was one of the most common exciting causes, it was among the latter denominated MORBUS COMITIALIS; in the popular language of our own day "Electioneering disease," in reference to the time and occasion in which it most frequently occurred; or, according to Seneca, because whenever the disease appeared the comitia were instantly broken up*. There are many other names, also, by which epilepsy was distinguished in former times, but it is unnecessary to recount them.

By the Latins called morbus comitialis, and why.

Pathology to be collected from that of the two preceding species.

The general pathology of the two preceding species, and which has been given at some length under the genus CLONUS, will apply to the present: but it is obvious from the symptoms that the muscular power, commonly speaking, though not always, is affected to a less extent, and the sentient and intellectual to a much greater; and consequently that the irritative fibres suffer in a smaller degree than the sensific and percipient.

* De Irâ, III. 7.

Before we enter upon the history of the disease it will be convenient to remark that, from the different modifications under which it shows itself, it has been subdivided by many nosologists into very numerous varieties, but that the whole may be reduced to the following:

Gen. VII. Spec. III. Syspasia Epilepsia. Epilepsy. Falling-sickness.

α Cerebralis. Cerebral Epilepsy.	Attacking abruptly without any evident excitement, except, in a few instances, a slight giddiness. In this case the predisposing cause is external violence or some internal injury, misformation or disease of the head.
β Comitata. Catenating Epilepsy.	Catenating with some morbid action of a remote part, with the sense of a cold vapour ascending from it to the head, or some other precursive sign.
γ Complicata. Complicate Epilepsy.	The limbs fixed and rigid with clonic agitation of particular organs.

Causes mental and corporeal.

The causes of epilepsy, like those of the two preceding species, may be mental or corporeal: but to produce this rather than either of the others there must be a peculiar diathesis, which seems to depend upon the state of the nervous organ. Where this exists almost any of the passions or mental emotions, when violently agitated, have been found sufficient to occasion a paroxysm, as anger, grief, fright, consternation; of all which the records of medicine afford abundant examples. In a like diathesis any kind of corporeal irritability will often become an exciting cause, whether more or less remote from the head itself; and particularly where it is productive of a preternatural flow of blood into the vessels of the brain. Thus an irritability in the ear from an inflammation, abscess, or some insect or other foreign substance that has accidentally entered into it, or the sudden suppression of a discharge to

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which it has been subject, has in various instances produced epilepsy*. Hildanus† mentions a case in which it followed upon a considerable degree of irritation excited in the same organ by the accidental introduction of a small piece of glass. In like manner, an irritable state of the stomach, or intestines, or the liver, from chronic inflammation, debility, worms, or the presence of substances that do not naturally belong to it, has proved a frequent origin. Bartholine gives an instance in which it supervened upon swallowing pieces of glass‡; and Widenfield another upon swallowing a needle§. Confirmed drunkards are peculiarly subject to this complaint.

Like hysteria often produced by a morbid state of the uterus in an epileptic diathesis. Whether such a diathesis exist?

Particular affections of the uterus are, in like manner, an occasional source of epilepsy, as well as of hysteria: and sometimes the latter has run into the former, where the epileptic diathesis has predominated. What this diathesis consists in it is difficult to determine, for it gives no external signs: and hence Dr. Pritchard seems to doubt its existence‖: but it is otherwise no easy matter to determine why a like irritation in the uterus should in one woman produce hysteria or convulsions, and in another epilepsy; examples of which last occur very numerously in all the medical collections of cases¶. Menostation or a suppression or retention of the menstrual flux is, perhaps, the most common of this class of causes: and we may hence see, why it should occasionally be excited by a suppression of the lochial discharge. A sudden suppression, indeed, of discharges of almost every kind natural or morbid, of long continuance in an irritable habit, has occasionally proved a sufficient source of excitement. And hence, it has followed upon restraining too abruptly a chronic dia-

* Hornung, Cista. p. 394. Demerehene, De la Conseillere in Diss. de Auditû. Ultraj. 1710.

† Fabr. Hildan. Cent. I. Obs. 4. ‡ Hist. Anat. Cent. v. Hist. 66.

§ Diss. Obs. Med. Triga. Goett. 1768. ‖ On Nervous Diseases, p. 95, 1822.

¶ Moranus, Apologia de Epilepsiâ Hysterică, Orthes. 1626. 4to. Schulze, Diss. Casûs Hysterico-epileptici Resolutio. Hal. 1736. Eickmeyer Diss. de Epilepsiâ Uterinâ. Ultraj. 1638.

rrhœa*, or an habitual hemorrhage from the nostrils†, or the hemorrhoidal vessels.

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Hence, also, repelled gout has been a cause, and still more generally repelled eruptions, and exanthems, as itch, various species of ecpyesis, small-pox, and in one instance miliaria §. Sometimes it has occurred with the regular flow of the menses, and been re-excited by every periodical return: for where the peculiar diathesis exists, the slightest stimulus is often sufficient to call forth the disease. In the case before us, however, the periodical discharge is usually accompanied with pain in the loins, or other local distress, as has been justly observed by Professor Osiander‖.

Predisponent cause most frequently seated in the head.

Yet the most frequent cause of epilepsy is seated in the head itself: and has been found on post-obit examinations to consist in some morbid structure or secretion in the bones, tunics, or substance of this organ, as tubercles, exostoses, caries, apostems, natural misconstruction of the whole, or of particular parts, injuries from external violence, loose, calcareous earth, hydatids, pus, ichor, and other diseased fluids. Of these, some are predisponent, others occasional causes; the former of which will often continue inactive for a long period of time, and, as we have already observed, appertain chiefly to the first or cerebral variety. It has been observed, also, that in this modification the disease often makes its attack suddenly, and without any manifest exciting cause. Yet there can be little doubt that in every instance some occasional cause does exist, though from its acting upon a morbid part of an organ that lies beyond our research it entirely eludes all notice. The organ chiefly affected, as appears from the numerous and delicate dissections of M. Wenzel, is the cerebellum. He tells us, indeed, that he

Organ chiefly affected.

* Eph. Nat. Cur. Dec. I. Obs. 88. † Hagendorn, Cent. I. Obs. 20.

‡ Riedlin, Lin. Med. 1695. p. 454.

§ Baraillon, Hist. de l'Acap. Royale de Med. ad 1776. p. 220.

‖ Uber die Entwicklungs-krankheiten in den Blüthen jahren des weiblichen Geschlechts. Theil. I. 58. Götting. 1817.

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never opened the body of a single epileptic patient in which he did not find the cerebellum diseased in some way or other *. But then Dr. Prout, who examined the bodies of numerous epileptics in the hospitals of Paris, tells us the same respecting the existence of worms in the intestines †; while "it is proper to remark," observes Dr. Cook in his essay on Epilepsy, published since the first edition of the present work, "that in some instances, after this disorder, no marks of disease whatever could be found within the cranium, the thorax, the abdomen, or any other part of the body." ‡ So that, however curious in themselves, it is only in a few cases such morbid appearances can be turned to any account; while some of them may occasionally, perhaps, be effects of the disease rather than its causes. Dr. Löbenstein-Löbel, however, thinks that there ought always to be found some marks of disease or other within the cranium: and there is something humorous in his mode of accounting for their absence. "This is owing", says he, "to an injudicious treatment on the part of the practitioner, or neglect of the patient, by means of which the disease, instead of confining itself to a particular organ, is thrown over the nervous system at large." §

Appearances on dissection vary.

Commencement and progress of the paroxysm.

The paroxysm in most cases occurs suddenly, and the patient is, so to speak, cut down at once, and loses all sense of perception and power of motion: so that if he be standing he falls to the ground with a greater or less degree of convulsion. There are a few rare instances of some degree of consciousness and perception throughout the paroxysm ‖; but the exceptions are few, and by no means enough to disturb the general rule. Commonly the limbs on one side are more agitated than those on the other. The muscles of the face and eyes are always much

Some degree of perception and consciousness still remaining in a few rare instances.

* Observations sur le Cervelet, et sur les diverses Parties du Cerveau dans les Epileptiques, &c. Mentz.

† Médicine éclairée par l'Observation et l'Ouverture de Corps. Paris, 1804.

‡ On Nervous Diseases, Vol. II. Part 41.

§ Weser und Heilung der Epilepsie, &c. 8vo. Leipsig, 1818.

‖ Breal. Sammlung. 1724. Band. I. p. 486.

affected, and throw the countenance into various and violent distortions. The tongue is thrust out of the mouth, which discharges a frothy saliva: the lower jaw is strongly convulsed; the teeth gnash violently upon each other; and, as this occurs while the tongue is protruded, the tongue is often wounded most grievously.

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During the continuance of the fit there is generally an alternate remission and exacerbation of the symptoms; though the whole does not usually last long, and is often of shorter duration than hysteria. On the cessation of the paroxysm the patient remains for some time motionless, quite insensible, and apparently in a profound sleep or lethargy. He recovers from this attack sometimes suddenly, but more generally by degrees, yet without any recollection of the sufferings he has undergone *.

Cessation of the paroxysm.

Under the first or CEREBRAL VARIETY, or where there is little or no appearance of an occasional cause, and the predisponent cause is supposed to exist in the head, the comatose symptoms, and, indeed, the general mischief to the external as well as to the internal senses is most striking. Yet the effect is even here very different in different individuals. The optic nerve affords severe proofs of this. Sometimes from a diseased accumulation of sensorial power in this organ, surrounding objects appear brighter or larger than natural, or both †. Yet in many cases the irritability of the nerve or its adjoining muscles has been destroyed, and a paresis, more or less general, has been the result. Hence a perpetual nictitation, strabismus, or blindness, is no unfrequent consequence. Yet the stimulant influx of accumulated power appears in one instance to have had a most fortunate and directly opposite effect; for an habitual blindness was hereby removed ‡. Where the muscles of speech have suffered in an equal degree, speechlessness has in like manner followed §; and

a S. Epilepsia cerebralis. Cerebral epilepsy.

Sometimes objects appear brighter or larger. Explained.

Sometimes accompanied with local paralysis.

In one instance blindness was suddenly removed.

* Portal. Mémoires sur la Nature et le Traitement des plusieurs Maladies. Tom. II. 229.

† Bartholin. Hist. Anat. Cent. III. Hist. 45. N. Saml. Med. Wahrnem. B. IV. p. 229.

‡ Ephem. Nat. Cur. Cent. I. II. Obs. 130.

§ Hagendorn, Cent. I. Obs. 14. Act. Nat. Cur. Vol. I. Obs. 71.

GEN. VII. SPEC. III. α 8. Epilepsia cerebralis. Cerebral epilepsy.

for the same reason where the joints have been violently affected with a predominancy of rigid over clonic action they have sunk into an insuperable contraction *. It is hence not to be wondered at that the whole system should occasionally be nearly exhausted of its entire stock of sensorial power, and that the paroxysm, as observed by Aretæus, should terminate in mania, idiotcy, or even death itself; sometimes instantaneously, and at other times through the medium of a fit of apoplexy †.

Sometimes the joints have been insuperably contracted.

β 8. Epilepsia comitata. Catenating epilepsy.

The warning or precursive symptoms, by which epilepsy is sometimes ushered, have been most common to the second or CATENATING VARIETY. The most usual sensation is that of the ascent of a cold creeping vapour from some particular part of the body, of the nature and cause of which we know nothing, but which has often been called an *aura epileptica*. This halitus usually ascends from the extremities, but there is no organ from which it has not issued in different individuals, according to examples accumulated by the collectors of medical curiosities; as the feet, the hands, the fingers, the thumb, the great toe, the legs, the arms, the hypochondria, the crown of the head. And in various instances spots on the face or feet have preceded, and at other times accompanied the paroxysm.

Aura epileptica.

Makes its ascent from all organs whatever.

Other singular harbingers.

We sometimes meet, however, with other harbingers of quite as singular a character, in the other varieties; as a heaviness of the eyes, pain, heat, and sparkling, which, by Sir Clifton Wintringham were regarded as signs that peculiarly distinguish the idiopathic from the symptomatic disease ‡. Sometimes there has been a wild play of phantasms or illusive objects before the sight §: and Portius relates the case of a woman, who was always warned of an approaching fit, by the appearance, as it were, of her own image in a mirror ‖. On many occasions indeed,

* Horstius, II. p. 90. † Aretæus, de Caus. et Sign. Morb. Cont. I. 4.

‡ Ricardi Mead Monita et Præcepta, permultis notationibus et observationibus illustrata. Tom. I. 8vo.

§ Bartholin. Hist. Anat. Cent. I. Hist. 81. Cent. II. Hist. 72. Hagendorn, Cent. III. Obs. 49.

‖ Medicæ Considerationes Variæ.

as Paulini has rightly observed, there is a peculiar overflow of spirits, and a tendency to merriment, as though the mind were entirely thrown off its balance *. Sometimes the patient exhibits sudden starts of running †, or dancing ‡; occasionally he is strangely talkative §; and in one instance exhibited a new and peculiar talent for singing ‖. Vic-D'Azyr relates the case of a woman who had been subject to epileptic fits for twelve years, and which at length became as frequent as four or five times a-day. They always commenced with a peculiar sensation in one leg, near the lower part of the gastrocnemius muscle. A surgeon, present on one of these accessions, plunged a scalpel into the part affected, which came in contact with a hard body, that he soon cut out, and found to be a dense cartilaginous ganglion, of the size of a very large pea, that pressed upon the nerve which he divided. The woman had no return of epilepsy ¶. We have already noticed a similar cause of irritation and mode of cure in a case of neuralgia *faciei*; and it is highly probable that under a slight variation of the nervous erethism in either instance, the one disease would have been substituted for the other.

Gen. VII. Spec. III. β S. Epilepsia comitata. Catenating epilepsy.

Singular case from Vic-D'Azyr.

Under the third or COMPLICATED VARIETY, while many of the limbs are rigidly fixed, almost without relaxation, the muscles of other parts are thrown into the most grotesque and ludicrous gesticulations of chorea: and, if the muscles of the chest be affected in this way, the patient appears in some cases to burst into involuntary fits of laughter from their irregular and clonic action **. At the same time such has been the force of the spastic muscles as to break one or more teeth, to rupture an artery,

γ S. Epilepsia complicata. Complicated epilepsy.

Sometimes accompanied with ludicrous gesticulations: explained.

Spastic violence occasionally such as to break one or more teeth or bones.

* Cent. II. Observ. 13. Bresl. Samml. 1724. Band. II. p. 484.
† Boot. De Affectionibus Omissis. Cap. VI. Schenck, Obs. I. Lib. II. p. 202.
‡ Chesneau, Lib. I. Cap. IV. Obs. 4. Eph. Nat. Cur. passim.
§ Eph. Nat. Cur. Dec. II. Ann. VI. Obs. 229.
‖ Act. Nat. Cur. Vol. V.
¶ Dict. des Sciences Medicales. Art. Cas. Rares.
** Eph. Nat. Cur. Dec. I. Ann. III. Obs. 304.

GEN. VII. SPEC. III. 7 & 8. Epilepsia complicata.

or render a vein varicose; and in one case at least to burst the left ventricle of the heart itself *.

Complicated epilepsy.

It has been observed that the epileptic paroxysm occurs chiefly at irregular periods, and is for the most part of short duration. There are, however, some instances on record of a singular exception to this rule in both cases.

Has occasionally been protracted for two or three days.

For it has occasionally lasted for two or three days with little or no remission. It has also returned at stated times, and with great frequency; with the revolution of the morning, or even of the night; in one instance six times in a single day †; and in another, on the revolution of the birth-day of each of the patient's parents ‡: and hence it may occasionally have obeyed lunations, and appeared to be influenced by the phases of the moon §, while running a regular course from some other cause. In a highly nervous temperament it is not difficult to account for such returns; since the dread of its return alone, when it has once established a circle of action, will form a sufficient source of irritation.

Has returned six times in a single day.

Regularity of return how accounted for.

Sometimes hereditary and congenital.

In a few instances it seems to have been hereditary ||, and perhaps in an equal number congenital, appearing soon after birth, and mostly produced by a fright of the mother during pregnancy.

Effects of fright.

Hildanus gives an example in which a fright of this kind was occasioned by the presence of an epileptic patient when suddenly attacked with a paroxysm ¶: and other medical records narrate examples of a like effect on the sudden rush of a hare, or some other animal, against a pregnant woman.

Paroxysm not unfrequently takes place on waking in the morning.

Many persons habitually disposed to epilepsy are attacked immediately on waking in the morning from a sound sleep, when we may be inclined to think they would be least liable to such a surprise. Dr. Cullen admits that

* Johnston, Med. Remarks, &c. Vol. II. † Tulpius, Lib. I. cap. xi.

‡ Eph. Nat. Cur. Dec. III. Ann. IV. App. 198.

§ Forest. Lib. X. Obs. 60.

|| Frid. Hoffm. Diss. de adfectibus hæreditariis eorumque origine. Hal. 1699. App. Suppl. II. 1. p. 523. Abhandlung über die erblichen Krankheiter, &c. von J. Clund. Rongemont. Frankf. 1796. 8vo.

¶ Cent. III. Obs. 8.

he finds a difficulty in explaining this curious fact. But when we reflect that epilepsy is a disease of irregular action, chiefly in a debilitated system, depending, where there is a confirmed diathesis, upon whatever may disturb the balance of perhaps any of the circulating fluids—and that this balance may be disturbed either by too much as well as too little excitement;—when we reflect, moreover, that during sound sleep there is always taking place a considerable accumulation of sensorial power, and may at times be an excess of it—we shall no longer, I think, be at a loss to account for an adequate cause of this very singular phænomenon.

Gen. VII. Spec. III. γ 8. Epilepsia complicata. Complicated epilepsy. Explained.

The general mode of treatment proposed for the last two diseases will apply to the present. The two-fold intention is to remove, as far as we are able, the exciting cause, and to allay the habitual irritation of the nervous system.

Mode of treatment. Intention two-fold: to remove the exciting cause, and allay the habitual irritation.

Where plethora manifestly exists, we may use venesection with great hopes of success, and, generally speaking, more freely than in hysteria. But here also cathartics will be of considerable avail, and, in the hands of Dr. Hamilton, have been found sufficient alone to produce a cure. To effect this, they should be used freely and maintained steadily, so as to keep up a perpetual counter-irritation in the bowels; which may act as a revellent against the morbid irritation in any other part, and directly carry off whatever acrimony may exist in the bowels themselves.

First intention. Venesection when useful. Cathartics: their beneficial operation accounted for.

Provided this be accomplished, the particular medicine employed does not appear to be a matter of great moment. Colocynth, gamboge, sulphate of magnesia, and calomel seem to have been used with almost equally good effects; though in visceral congestion the last should never be omitted. If worms be suspected, and especially the vermicular ascaris, the rectified oil of turpentine should undoubtedly be allowed a preference. Even where worms are not found to exist, this has often proved highly successful, apparently by the revulsive action it excites. As

Oil of turpentine:

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a purgative it should be given in ounce or ounce and half doses to an adult: but as an alterant in smaller doses repeated daily *.

how to be administered under different circumstances.

Cold affusion.

Cold affusion, whether general or confined to the head, has been rarely tried in our own country, but is strenuously recommended by many foreign authorities, as well during the paroxysm as in the intervals; particularly by Dr. Löbenstein-Löbel. He employs it, indeed, both in an entonic and atonic state of the frame, only in the former case premising venesection. Under particular circumstances it may be useful, but it requires great caution; for even this writer prohibits it where the patient is subject to gout, rheumatism, diarrhœa, or nervous trepidations; at the period of menstruation, or any other expected discharge, or on repelled eruptions †.

Muscus Agaricus.

It was probably from its stimulant and cathartic effects alone, that the muscus *Agaricus* was ever in a high degree of popularity. It is a reddish mushroom, with a white, thick, and hollow pillar, and a reddish or crimson cup, nearly flat, about six inches in diameter. The dose was from ten to thirty grains of the powder to be taken in vinegar. Its effects, however, are sudorific as well as purgative, and, as the last are not wanted, it has been judiciously relinquished for other medicines of the same class.

More useful for other purposes.

It may be useful, nevertheless, to observe, whilst upon this article, that it is employed successfully in destroying both flies and bugs, on which last account it has been called *bug-agaric*. The former are killed instantly on their sipping milk in which the plant has been infused; and the latter by rubbing the juice over the holes and other places to which they retreat in the day-time.

Emetics often inconvenient,

De Haen often employed emetics, and chiefly for the purpose of exciting and maintaining a new action, for which purpose he continued them daily for a week or two.

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* See Dr. Latham, Med. Trans. Vol. v. Art. XXIII. and compare with his Treaties on Diabetes.

† Wasen und Heilung der Epilepsie, &c. 8vo. 1818.

His example was followed at one time, but has long been relinquished as highly inconvenient, and in some cases injurious *.

Gen. VII. Spec. III. Syspasia Epilepsia. Epilepsy. Falling-sickness. Treatment. First intention.

Externally, stimulants have also been tried, and in various instances seem to have been attended with good success. The spine has been rubbed night and morning with different preparations of ammonia, camphor, or cantharides; and setons and issues have been applied to different parts of the body, as have also both the actual and potential cautery †. Where the cause of the disease has been suspected to be seated in the head, they have been chiefly confined to this organ, but where there has been a manifest aura epileptica, to the limb or other part of the body from which the vapour has seemed to ascend. And there can be no question that these also have frequently proved serviceable, especially in preventing the recurrence of subsequent fits, where a habit of return has been established. The practice is of considerable antiquity, for, under some modification or other, it is recommended by Galen, and many other Greek writers. In later times it has been chiefly employed by Baron Percy ‡ and by M. Gondret. Schenck has examined, at considerable length, the successful and unsuccessful cases which, in his day, had been published upon the use of cauteries §. In several instances an accidental burn has answered the purpose of a surgical escharotic, and fortunately proved a radical cure ‖. Professor Zoeffler of Altona, instead of cauterizing the limb from which the epileptic halitus seems to ascend, has ingeniously tied a tight ligature above the part whence the vapour issues, probably upon the ground of the success with which it is often attended in the bite of the rattle-snake, and other venomous animals, and in one or two cases, the ligature seems to have proved quite as favourable in the present disease.

sometimes injurious.

External stimulants.

Accidental burn of service.

Ligature round the limb yielding an epileptic aura.

* Rat. Med. Part v. Cap. iv. § 1. Eph. Nat. Cur. Cent. vi. Obs. 58.

† Ab. Heers, Observ. Var. Locher, Observ. Pract. Roekard, Journ. de Med. Tom. xxv. p. 46.

‡ Pyrotechnie, passim. § Observ. Lib. i. No. 238.

‖ Eph. Nat. Cur. Dec. i. Ann. ii. Obs. 9.

GEN. VII. SPEC. III. Syspasia Epilepsia. Epilepsy. Falling-sickness. Treatment. Second intention.

The general irritability of the nervous system has been attempted to be overcome by sedatives and tonics. Of the former the chief have been camphor, cajeput, valerian, hyoscyamus, stramonium, and opium. The peculiar powers of all these we have so often had occasion to examine, and particularly under the preceding two species, that it is only necessary to offer a few words on the datura *Stramonium*. This medicine, like many others, has had a strange alternation of fortune. About a century ago it was esteemed every thing, half a century ago it declined greatly in its reputation, and has of late been once more rising into esteem. Fourteen epileptic patients in the royal hospital as Stockholm, were, many years since, treated with pills of stramonium *. Of these, eight are declared by Dr. Odhelius, in the official report upon this subject, to have been entirely cured, five had their symptoms mitigated, and only one received no relief. The greater number on first using this remedy were affected with confusion in their heads, dimness in their eyes, and thirst; but these symptoms gradually diminished.

Sedatives and tonics.

Popular use of stramonium at one time:

especially in Sweden.

Its immediate effects.

Hyoscyamus.

Where hyoscyamus has been given it has been employed both in the leaves and seeds: Dr. Parr preferred the latter, and usually combined the seeds with some aromatics, commencing with doses of a grain, and advancing them to four or five grains.

Vegetable tonics. Missletoe, in popular favour formerly:

yet without reason.

The tonics employed have been both vegetable and metallic. Among the former the missletoe of the oak stood at one time at the head of the remedies for epilepsy. It was regarded as a specific by Colbatsch †, and most warmly recommended by Haller and De Haen ‡. It appears, however, of no importance from what tree it is taken, for, as a parasite, it flourishes equally on many, and preserves its own peculiarities on all; and from every tree, so far as late experiments have been made, it is

* Mem. de l'Acad. Royale des Sciences de Stockholme traduit par M. Keralio, Tom. III. Razoux, Diss. Epist. de Stramonio, &c.

† See also Abhandlung von dem Missel, und dessen kraft wieder die Epilepsie, Altenb. 1776.

‡ Rat. Med. Pract. Part VI. p. 317.

equally inefficacious and futile. It is difficult, indeed, to conceive what property could ever recommend this plant to therapeutic notice, for its sensible qualities are few and slight, both the leaves and roots having little smell, and only a weak bitterish, nauseating taste.

Gen. VII. Spec. III. Syspasia Epilepsia. Epilepsy. Falling-sickness.

Bark, and the leaves of the orange tree, both of which have been very strongly recommended by many writers as powerful remedies for epilepsy, are almost as little worth a trial. The leaves of the orange, popular as they were at one time for the cure of this disease*, have less sensible virtues than the peel; while it is only in a very few instances that we can indulge a reasonable hope of any degree of benefit from cinchona. In plethoric habits it will generally do mischief, in the cerebral variety it can do little or no good; and it is only in a relaxed and mobile state of the animal frame in which we can expect the slightest success.

Treatment. Second intention. Folia aurantii less powerful than the peel. Bark seldom of use.

The metallic tonics, however, offer a very different and more cheering prospect: and all of them seem to have given proofs of a salutary result. The metals chiefly trusted to have been mercury, arsenic, zinc, silver, copper, and iron.

All the metallic tonics useful.

Mercury has been tried in almost every form and to almost every extent; sometimes, indeed, to that of salivation, in which state some practitioners pretend to have found it highly useful. As a general plan, however, this can never be adviseable: and Muralt admits that in most cases where it has seemed to answer, it has only restrained the disease, or prolonged the interval, but not effected a radical cure†.

Mercury.

Of the preparations of zinc we took notice under CONVULSION, and the remarks there offered are equally applicable to epilepsy. Such, however, has been the state of exhausted irritability produced by this disease in some instances, that the patient would bear almost any quan-

Zinc.

All its preparations given in large quantities.

* Hannes (Christ. Rud.) Epist. de Puero epileptico Foliis Aurantiorum recentibus servato. Leips. 1766. Gesner, Beobachtungen, i. No. 19. The epilepsy was here an effect of terror.

† Hippocr. Helvet. p. 247.

GEN. VII. SPEC. III. Syspasia Epilepsia. Epilepsy. Falling-sickness.

tity of them. Mr. Johnson of Lancaster gave the sulphate of zinc in doses of five grains twice a-day at first, and increased the dose gradually to twelve grains. Thelenius had previously given eight grains of the same daily *. Arsenic has of late been chiefly employed in the form of the common solution, and, as united with nickel, in the compound of an arseniate †. But the preparations of copper and silver have met with more success than any of the preceding. The best form of the first is that of the cuprum ammoniatum; and the Edinburgh Medical Commentaries are full of cases that afford proof of its remedial power. The simplest mode of exhibiting this medicine is that of pills, as the *pilulæ cæruleæ* of the Edinburgh Pharmacopœia, which is nothing more than ammoniated copper made into a pilular consistence by means of crumbs of bread. The patient should begin with half a grain of the metallic salt every night, and increase it to double the quantity if his stomach will bear it.

Treatment. Second intention. Arsenic: with nickel. Copper. Pilulæ cæruleæ, Edin.

Silver. Its nitrate. In a ruder form of early use. Dark colour on the skin from the use of the nitrate of silver.

The best, and indeed the common preparation of silver for the purpose before us, is its nitrate. Under a more operose and unscientific form, it was employed as early as the beginning of the seventeenth century by Angelus Sala, and afterwards by Boyle and Geoffrey, though for other complaints rather than the present. Dr. Albers of Bremen has observed, and the remark has since been confirmed by Dr. Roget ‡, Dr. Badeley §, and numerous other practitioners, that the use of this medicine, if persevered in, gives a peculiar darkness to the colour of the skin, which remains for many months after its discontinuance, in some cases for upwards of two years ‖.

Employed in pills and in solution.

Dr. Powell has tried the nitrate of silver in St. Bartho-

* Mediciniche und Chirurgische Bemerkungen. Franc. 1789.

† See a valuable article on this and similar medicines in the Edinb. Med. and Surg. Journ. No. XIX. p. 374.

‡ Trans. Medico-Chir. Soc. Vol. VII. p. 290.

§ See Epichrosis Pœcilia of this Work, Vol. V. Cl. VI. Ord. III. Gen. X. Spec. VI.

‖ On the Effect of Nitrate of Silver, Trans. Medico-Chir. Soc. Vol. IX. p. 234.

lomew's Hospital upon a large scale, and in two forms, that of pills and that of solution, the solvent being mint-water which seems best to cover its unpleasant taste. Many of the cases seem to have been strongly marked, and they are given in a communication to the London College *. They relate chiefly to young persons of both sexes from nine to fifteen years of age; in all of whom the medicine proved successful, and is said to have operated a perfect cure. The dose at first consisted of not more than half a grain or a grain of the metallic salt whether in the form of pill or of solution, given usually every four hours, but this was gradually increased to doses of three or four grains taken at the same distance of time: and the increase was still continued till sickness or some other inconvenience forbad. It is singular that while the earlier writers complain very generally of the purgative powers of this medicine, and the griping it produces, the modern preparation excites no such effects; not even when it has been carried, as it has occasionally been, to the amount of fifteen grains to a single dose in the shape of pills; though it should be remembered that few stomachs will bear more than five grains in a dissolved state. Dr. M'Ginnis of Portsmouth affirms that he has employed it repeatedly both in recent and chronic cases, without any perceptible effect, in doses of twelve grains: and M. Georget, who, however, does not seem to be much acquainted with its use, has condemned it, as a medicine dangerous to the coats of the stomach †.

GEN. VII. SPEC. III. Syspasia Epilepsia. Epilepsy. Falling-sickness. Treatment. Second intention. Employed in pills and in solution. Both modes highly serviceable. Exemplified.

Iron, in all its preparations, offers a far less hazardous remedy, and in some instances appears to have been attended with considerable success. The best form perhaps is that of the subcarbonate, in the proportion of a drachm three times a day, as already recommended in the case of NEURALGIA: and thus administered it has occasionally produced a radical cure.

Iron.

All these tonics seem to operate by taking off the tendency

Mode by which tonics produce benefit in the epileptic temperament.

* Med. Trans. Vol. IV. Art. VIII.

† Phys. de Syst. Nerv. Tom. II. p. 401.

GEN. VII. SPEC. III. Syspasia Epilepsia. Epilepsy. Falling-sickness. Treatment. Second intention.

to irregular nervous action, and, consequently, the tendency to a return of the paroxysm, where a habit of recurrence has once been established: for in many instances such habit alone appears to be as much an adequate stimulus as a similar habit in intermittents: and hence, whatever has a tendency to break through such a habit must have a beneficial effect; fevers themselves of various kinds have often done this*; and especially quartans, the most obstinate of the whole tribe of fevers; and the above remark explains their mode of operation in this respect: it is that of introducing a new circle of actions.

Causes and form of the disease so complicated that the remedies must be varied to meet them.

But the exciting causes of epilepsy are so numerous, and the disease itself so complicated, that it would be in vain to expect success in every instance from metallic tonics, or any one description of medicines whatever. The remedies must often be varied to meet the varying case. And on this account it is by no means uncommon to find epilepsy removed by oil of turpentine or some other purgative, that had obstinately resisted the most powerful doses of the metallic salts: while in some instances the disease is altogether irremediable.

The disease sometimes irremediable.

* Hornung, Cista Medica. Norib. 1625, 4to. Augzüge aus dem Tagebuche eines ausübenden arztes, &c. 1 Samml. Berl. 1791

GENUS VIII.

CARUS.

Torpor.

MUSCULAR IMMOBILITY; MENTAL OR CORPOREAL TORPITUDE OR BOTH.

GEN. VIII. Origin of the generic term.

CARUS or κάρος, "sopor cum gravedine", is derived from κάρα, "the head", being the organ in which the disease is chiefly seated. As employed in the present arrangement, the genus signified by this term will readily include the following species:—

1.	CARUS ASPHYXIA.	ASPHYXY. SUSPENDED ANIMATION.
2.	—— ECSTASIS.	ECSTASY.
3.	—— CATALEPSIA.	CATALEPSY.
4.	—— LETHARGUS.	LETHARGY.
5.	—— APOPLEXIA.	APOPLEXY.
6.	—— PARALYSIS.	PALSY.

Carus, therefore, will be found to embrace under the present arrangement, a field somewhat more extensive than that allotted to it by most other writers, so as to include several of the species arranged by Sauvages under his two orders Leipopsychiæ, and Comata; to be nearly synonymous with the Defectivi and Soporosi of Linnéus; and still more so with the Adynamiæ of Macbride.

Synonyms.

Torpor preferred to stupor and sopor, and why.

As a generic sign the author has preferred the term torpor or torpitude to stupor or sopor, which have hitherto been chiefly made use of for the same purpose; and this on two accounts. First, as being of wider signification, since it includes the general idea furnished by both the others; and, secondly, because neither stupor nor sopor has been uniformly employed in a determinate sense of

GEN. VIII. Carus. Torpor.

any kind. Thus stupor is often, perhaps usually, restrained to mental insensibility or morbid sleep; while Sauvages has explained it as meaning hebetudè of the sense of touch, "molestia quæ sensum tactûs obscurat"; and Linnéus, transient sleep of any part with a sense of formication, "*sopor* transitorius partis alicujus cum sensû formicationis." In this place, and indeed, generally, Linnéus makes *sopor* combine the two ideas of a cessation of motivity and of feeling; or of irritability and sensibility; while Cullen objects, and correctly, to this strained extent of the term, and limits it to the ordinary signification of "sleep, or a sleep-like state". Torpor or torpitude, in the definition of carus now offered, imports insensibility mental or corporeal, in a frame still alive, and actuated, though often imperceptibly, by the vital principle. The term insensibility would not so well answer the purpose; it is of too wide a range, and too loose a meaning, being often predicated of insentient, unorganized matter, that never possessed the principle of life.

Preferred to insensibility, and why.

Extent of the terms carus and torpor as employed in the present arrangement.

Carus or torpor thus explained, will equally apply to all the species we have just enumerated, some of which are very uncommon, and a few of which have been supposed doubtful; though, upon the whole, the authorities are in their favour, and they ought neither to be omitted nor merged, as they seem to be by Cullen, in the sweeping name of apoplexy; constituting in his hands a genus that includes a variety of distinct, and in some instances, very different diseases; but which, under his own classification, Dr. Cullen found it difficult to distinguish, or place separately.

SPECIES I.

CARUS ASPHYXIA.

Asphyxy. Suspended Animation.

TOTAL SUSPENSION OF ALL THE MENTAL AND CORPOREAL FUNCTIONS.

Gen. VIII. Spec. I.

Origin of the specific name:

ASPHYXY, from *α* privative, and *σφύξις*, "pulsus", is here used in the general sense of the term, though it has occasionally been employed to import mere failure or cessation of the action of the heart and arteries, which, in the present classification, is made a species of entasia under the name of ACROTISMUS; and has already passed in review as belonging to the second order of the present class.

how far connected with acrotismus.

Differently subdivided by different writers.

Asphyxy offers us several varieties from a difference of occasional cause, which produces a like diversity in a few of its symptoms. Sauvages, who has made the disease a genus, gives us no fewer than seventeen species or subdivisions; Dr. Goodwin contents himself with three, and, denominating the disease *melanæma*, from the black colour which the blood ordinarily assumes under its influence, distinguishes them by the names of melanæma from hanging; from drowning: and from inspiration of fixed air.

Melanæma of Goodwin, what.

Of these, the first arrangement is unnecessarily diffuse and complicated; and the second too limited, and not quite correct, since it will presently appear that the direct cause of asphyxy in hanging and drowning is one and the same.

The author has, in consequence, been induced to divide the species into the following table of varieties, form-

GEN. VIII. SPEC. I. Carus Asphyxia. Asphyxy. Suspended animation.

ing a middle line between the two preceding arrangements, and including, as he hopes, every modification with which it is of importance to become acquainted:

α Suffocationis. Asphyxy, from suffocation.	Produced by hanging or drowning: countenance turgid and livid.
β Mephytica. Choke-damp.	Produced by inhaling carbonic acid or some other irrespirable exhalation: countenance pallid.
γ Electrica. Electrical asphyxy.	Produced by a stroke of lightning or electricity. Limbs flexible; countenance pale: blood uncoagulable.
δ Algida. Frost-bitten asphyxy.	Produced by intense cold. Limbs rigid: countenance pale and shrivelled.

α C. Asphyxia suffocationis. Asphyxy from hanging or drowning. Immediate cause.

In the first variety or ASPHYXY FROM HANGING, or DROWNING, the immediate cause is suffocation, or a total obstruction to the respiration, and is so explained by Bonet, Haller, Lancisi, Pettit, and De Haen.

The face, as we have just noticed, is turgid and suffused with livid blood: and the general symptoms are given with so much truth and emphasis by Shakspeare, in Suffolk's description of the body of Henry VI. that I copy them as a guide to the medical student:

> See how the blood is settled in his face!
> Oft have I seen a timely parted ghost
> Of ashy semblance, meagre, pale, and bloodless;
> Being all descended to the labouring heart:
> Who in the conflict that it holds with death,
> Attracts the same for aidance 'gainst the enemy,
> Which, with the heart, there cools, and ne'er returneth
> To blush and beautify the cheek again.
> But see! HIS face is black and full of blood;
> His eye-balls further out than when he lived,
> Staring full ghastly, like a strangled man.
> His hair up-rear'd, his nostrils stretched with struggling;

His hands abroad display'd as one that grasp'd
And tugg'd for life, and was by strength subdued.*

Asphyxy from hanging or drowning. Distinctive symptoms in hanging and drowning.

This description, however, applies more fully to asphyxy from hanging than to that from drowning, in which last there is more flaccidity in the limbs, and consequently less of "struggle and grasp, and tug for life." In both cases, nevertheless, the countenance has a semblance of apoplexy, as though there was a congestion of blood in the head, to which the application of the rope to the neck, in the case of hanging, affords some countenance. And hence, many eminent writers of earlier times, as Boerhaave, Wapfer, and Alberti, referred suffocation from both the causes before us to apoplexy; while Cullen made it a subdivision of this last disease: and M. Portal has, still more lately, entered into the same view †. But in apoplexy there is always oppressive, generally stertorous sleep, which never exists in asphyxy, unless, indeed, the exciting cause has only partially operated, and produced a different disease, or apoplexy instead of asphyxy; affording us a proof of what in fact we have noticed in a thousand instances already, that different maladies may issue from the same cause, according to the degree of its violence, or perhaps the accidental condition or constitution of the patient. In asphyxy, wherever we can trace any sign of diseased action, the lungs are chiefly affected; in apoplexy, the brain. In the first the irritability of the system is sudden and total, in the second it is progressive and partial. In the former the patient is often restored after all the common symptoms of death have, for some minutes, perhaps for nearly an hour, fixed upon him: in genuine apoplexy this is never the case. The appearances on the dissection of drowned animals are very accurately given by Dr. Curry and precisely coincide with the distinction here offered. The vessels of the brain were found, in every instance, free from distention, or any other morbid condition, while the lungs were overloaded.

How both distinguished from apoplexy.

* Henry VI. Second Part, Act. III.

† Observations sur les Effets des Vapeurs Mephytiques. Nouv. Edit. Paris, 1774.

GEN. VIII. SPEC. I. a C. Asphyxia suffocationis. Asphyxy from hanging or drowning.

Where the occlusion of the larynx is imperfect, there is a tendency to apoplectic symptoms: and why.

And hence more so in hanging than in drowning. Further explained.

The author has observed that the immediate cause of asphyxy, or, in other words, an occlusion of the larynx, may be partial, and in such case give a tendency to apoplectic symptoms. And in effect, wherever the larynx or glottis is only imperfectly closed we meet with such a tendency; and it is on this account that the face of those who die by hanging is more generally turgid, and the muscles give proof of more convulsive action than the face of those who die by drowning; for in the former case, either from a rigidity in the coats of the larnyx, or from the rope not being properly applied, a small current of air is often capable of moving backward and forward for some time, and particularly in suicides, many of whom suffer much before they die in consequence of applying the rope very bunglingly, and whose cheeks, lips, eyes, and tongue are peculiarly turgid and prominent. The reason of this may be partly collected from the history already given, in the Physiological Proem to the third class, of the state of the heart in the act of dying. The immediate cause of the contraction or systole of the heart, we observed, has not been satisfactorily settled: but we may safely affirm that a part of this cause, if not the whole, depends on the change, whatever that change consists in, which takes place in the blood during its ventilation in the lungs, by which it is rendered more active and stimulant; for as this change gradually subsides in those who are in the act of dying, the heart contracts more feebly; and when, with the last expiration of air, it ceases altogether, the heart as instantly contracts no more: the consequence of which is that the lungs, the heart, and the larger vessels in the vicinity of the heart, are usually found filled with blood, the smaller vessels empty, and the general surface of the body pale. Now whatever has a power of instantaneously cutting off inspiration, must necessarily produce the same effect: and hence, as we have already observed, the gorged state of the lungs and the livid hue of the countenance in most cases of suffocation by drowning: and consequently the only reason why the lungs are not quite so full, and the countenance more turgid in most cases of

suffocation by hanging, is that, from the inexpert manner in which the rope is usually applied, and the necessary admission of a certain portion of air to the lungs, the heart is, for some time, able to contract feebly, and to keep up a feeble circulation, while the pressure of the rope on the jugulars prevents a ready return of the blood from the head, and consequently accumulates it in all the vessels of the face; and hence, the more inexpertly this operation is performed, the more turgid these vessels must become, and the more apoplectic the general appearance.

GEN. VIII. SPEC. I. « C. Asphyxia suffocationis. Asphyxy from hanging or drowning.

It is the same, as we shall presently have occasion to notice more fully, with persons who are exposed to the action of carbonic acid gass or other mephytic vapours, so far lowered or intermixed with respirable air as to render them incapable of destroying life instantly; in which cases there has not only been sometimes a feeble prolongation of the circulation, but even a stertorous breathing, and many other symptoms of apoplexy, of which we shall have to speak further under the next variety.

Same apoplectic appearance sometimes produced in choke-damp.

There are some of the narcotic poisons that seem to act in the same manner. Given in a full dose they destroy the life instantly, but in an under-dose the circulation is continued feebly, and apoplectic symptoms ensue. Thus, according to Mr. Brodie's experiments, infusion of tobacco when *injected into the intestines*, and the upas antiar, when applied to a wound, have a power of rendering the heart insensible to the stimulus of the blood, and thus suddenly stopping the circulation: while alcohol, the juice of the leaves of aconite, the woorara, essential oil of almonds, whether applied to wounded surfaces or taken internally, produce death by destroying the functions of the brain, while they act only indirectly on the circulation.

And under the influence of various narcotic poisons.

In like manner, De Haen gives one instance of apoplectic signs discovered on the dissection of a criminal who had been publicly executed by hanging; in which the pia mater was found unusually florid, the vessels of the brain turgid, and some degree of serous effusion had

Illustrated from De Haen.

GEN. VIII. SPEC. I. α C. Asphyxia suffocationis. Asphyxy from hanging or drowning.

taken place under the tunica arachnoides: but in this case he found, also, that the lungs were equally overloaded, and that the rope had not pressed upon the trachea, but upon the part lying between the scutiform cartilage and the os hyoides, and consequently that the compression had been imperfect *.

Where the occlusion of the trachea is entire, the same effect always follows whatever be the cause.

But, except in cases where the occlusion of the trachea has not been entire, the patient who suffers from asphyxy produced by hanging, is as void of apoplectic symptoms as he who suffers the same disease from drowning. In the dogs hanged by way of experiment by De Haen †, and cut down as soon as they were dead, and in those drowned by Dr. Goodwin ‡, there was an equal absence of apoplectic signs: and, in truth, wherever an executioner does his duty completely, the death is too sudden to allow of accumulation as its cause. By the double effect, however, of stopping the circulation, and obstructing the passage of the air, the public punishment of hanging, when dexterously conducted, is probably attended with very little pain. It has been said of late, that another, and indeed a chief cause of the suddenness of the death hereby produced is to be found in a luxation of one of the upper vertebræ. Such an effect may take place at times upon our public scaffolds, on which the hardened criminal jumps from the gallows to produce a rapid result, but it is rarely met with in the private retreat of the more timid suicide.

Hanging when dexterously effected accompanied with but little pain, and why.

Whether there be a luxation of one of the upper vertebræ.

Victims of the law why sometimes recovered after being cut down.

That a total obstruction to the respiration, moreover, is the chief cause of death on hanging, is clear from the cases in which the asphyxy has been cured by inflation of the lungs after the unhappy wretch has been cut down; and from one or two instances in which the individual has escaped death from an ossification of the trachea; of which we have a few curious examples in Bonet, and

* Rat. Med. continuat. Tom. I. part II. 8vo.

† Abhandlung über die art. des Todes der Ertrunkenen, Erhenkten, und Erstikten. Wien. 1772.

‡ Connexion of Life with Respiration, or an experimental Inquiry into the Effects of Submersion, Strangling, &c. Lond. 1788.

Fallopius*; and more particularly from the case of Inetta de Balsham, stated by Dr. Plott in his Natural History of Staffordshire: who having been hung, in the reign of Henry VI., according to the due form of law, was cut down alive, after suspension from nine o'clock on Monday till later than sun-rise on the ensuing Tuesday; in consequence of which she received the king's pardon. Dr. Plott ascribes this extraordinary escape, and with great reason, to an ossification of the larynx: "She could not", says he, "be hanged, upon account that the larynx or upper part of her wind-pipe was turned to bone."†

GEN. VIII. SPEC. I. α C. Asphyxia suffocationis. Asphyxy from hanging or drowning. Examples.

It has hence been occasionally proposed to save a criminal condemned to the gallows by introducing a silver canula into the trachea. It is commonly reported that such an attempt was in agitation among the friends of the unfortunate Dr. Dodd, but we have no reason to believe it was then, or ever has been actually tried.

Whether possible to save life by a silver canula.

The following experiment, however, as related by Dr. Curry, is almost demonstrative as to the immediate organ through which the attack of death is received in hanging. It was performed at Edinburgh, many years ago, by the senior Dr. Munro, and in the language of Dr. Curry "clearly proves that the exclusion of air from the lungs is the immediate cause of death. A dog was suspended by the neck with a cord, an opening having been previously made in the wind-pipe, below the place where the cord was applied, so as to admit air into the lungs. In this state he was allowed to hang for three quarters of an hour, during which time both the circulation and breathing went on. He was then taken down without appearing to have suffered much from the experiment. The cord was now shifted from above to below the opening made into the wind-pipe, so as to prevent the ingress of air into the lungs, and the animal being again suspended, he was completely dead in a few minutes."‡

Decisive experiments of Monro.

Asphyxy from submersion has been very generally ac-

Whether in asphyxy from submersion water rushes into the

* Bonet. Lib. VII. Sect. XII. Obs. II. Fallop. Tom. I. Obs. VI.
† Hist. p. 292. ‡ Observations, p. 71.

GEN. VIII. SPEC. I. a C. Asphyxia suffocationis. Asphyxy from hanging or drowning.

counted for, even by many who have regarded it as an effect of suffocation, by supposing the suffocation produced by a rush of the water into the cavity of the lungs which prevents the access of air, and consequently of respiration. This idea, first, perhaps, advanced by Galen, has been in modern times adopted by Haller, Goodwin, Ponteau, and indeed most physiologists, and attempted to be supported by various experiments on drowned cats. It is now well ascertained, however, that in many cases of death from drowning not a drop of water enters into the lungs; that where it does enter, the quantity is, for the most part, very small; and that, whether small or large, it passes the trachea after death instead of before it, and consequently cannot be a cause of death.

lungs, and obstructs the breathing?

Glottis how necessarily closed in submersion.

The immediate cause, as in the case of suspension, is suffocation. The glottis is extremely irritable; the access of the surrounding water produces a rigid or entastic spasm upon its muscles; and the rima is as completely closed against the entrance of air, as in the case of a cord round the throat. And hence, the suffocation often produced by a very small substance of any other kind accidentally thrust into or stimulating its aperture, as a minute crust of bread, a hair or blade of grass, a peach or even a grape stone; to which last Anacreon is well known to have fallen a victim.

Further illustrated.

How long life may be restored after hanging or drowning; during suffocation dependent on various circumstances.

How long the living principle may, under these circumstances, remain attached to the animal frame, and afford a chance of recovery, is not ascertained, with any degree of accuracy, even in the present day: and the answer to the question must, in a considerable measure, depend upon the degree of irritability, or perhaps the idiosyncrasy, of the individual. Mr. Brodie is reported to have asserted in his Lectures before the College of Surgeons that "when the action of the heart has ceased after the suspension of the breathing, or even has become so feeble as no longer to be able to maintain the circulation, it can never be restored by *artificially* inflating the lungs". This may be true: but we have innumerable proofs of a *natural* restoration of both these organs to healthy action

after such action has ceased for many minutes; perhaps for many hours in *Catalepsia* or *Trance*, as we shall have occasion to observe presently.

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It has been known, however, from a very early age, that torpitude from drowning may be induced and continue for some minutes, without much danger: since this, as we have already observed, was a common practice among the Greeks and Romans for the cure of lyssa*; and was carried by Van Helmont so far that he would not suffer the individual to be raised from under the water till the psalm *Miserere* had been solemnly chaunted, which was the measure of time he allowed. If the submersion have not exceeded five minutes, and no blow against a stone, or other violence have coincided, persons will usually be found to recover without much difficulty. After a quarter of an hour, recovery is not common, and after twenty minutes or half an hour, it is nearly hopeless. Divers, from habit, are able to remain under water for three minutes; but, according to Dr. Edwards of Paris, this is the longest period†. Young animals require less change of respirable air than those that are old. Dr. Edwards has known puppies live under water fifty-four minutes, though their voluntary motions had ceased in four minutes alone.

Submersion generally recovered from if not more than five minutes. Sometimes if a quarter of an hour: rarely if half an hour or twenty minutes.

Illustrated.

The first report of the establishment for the recovery of drowned persons, at Paris, divides the cases that had occurred to it into three classes, the first of which includes those that were restored to life, and comprehends twenty-three instances. Of these one recovered after having been three quarters of an hour under water; four after having been half an hour, and three after a quarter of an hour; the rest after a still shorter period‡. Of twelve dogs, drowned by De Haen for the purpose of experiment, not a single one was recovered though only confined under water for a few minutes. It is very possible, however,

* Vol. III. Cl. IV. Ord. III. Gen. I. Sp. VIII.

† De l'Influence des Agens Physiques sur la Vie, &c. Paris, 8vo. 1824.

‡ Détail des Succès de l'Etablissement que la Ville de Paris a faite en faveur des Personnes Noyées, &c. Paris 1773.

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that in these cases the force necessary to keep them submerged, may have considerably added to the extent of the mortality. Among mankind, where no such force is applied, this eminent physiologist conceives that one in sixteen is no unfavourable average of the proportion that recover *.

About one in sixteen recover, of those that are drowned accidentally.

There are cases, indeed, on record, of recovery from drowning after a submersion of some hours; but these are rare and wonderful, and some of them altogether incredible: for we have histories of recovery after eighteen hours †, four and twenty hours ‡, and even three days §, while some of the retailers of the marvellous have stated intervals of fifteen days, and in one instance, related with much gravity, not less than seven weeks ‖. From all which, however, we may at least learn the useful lesson of the necessity of redoubling our exertions when called upon for medical aid, and of not despairing very early.

Some relations of recovery wonderful beyond credibility.

Experiments of Edwards on frogs, &c.

Dr. Edwards of Paris has lately been instituting some singular experiments on the Batrachian amphibials (*reptiles* of the Linnéan system), and especially on frogs and salamanders, to determine how long the living principle may continue in a state of asphyxy, which afford some light on the subject before us in at least two important points.

Important results,

He has first very clearly ascertained that the rapidity of death depends very considerably upon the temperature of the water in which the experiments are made, compared with the actual temperature of the medium in which the animal has been living for some time antecedently: for that frogs taken in November from an atmospheric temperature of 50° and immersed in water of the same temperature lived from five hours and ten minutes to eleven hours and forty minutes, being double the length of time they lived in water of the same temperature in summer.

in respect to temperature.

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* Rat. Med. Cont. Tom. I. Part. II.

† Pechlin, De Aëris et Alimentorum Defectu et Vita sub Aquis. Kiel, 1676. 8vo.

‡ Lepi, Submersos per 24 horas vitam protrahere posse. Rom. 1670.

§ Eph. Nat. Cur. Dec. I. Ann. VI. VII. Obs. 20.

‖ Id. Observ. 125. 130. 192.

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Whence it is probable that the relative speed or tardiness with which a man dies in submersion, depends partly upon the temperature of the atmosphere in which he has lived for several preceding days, compared with that of the water at the time of the accident. And secondly he has satisfactorily established that frogs and salamanders, deprived of the heart, continue to live for a longer period in the air than in water whose air has been withdrawn from it. At the end of four hours, he tells us that the salamanders which were in the water appeared to be dead, though they manifested some degree of activity on being pinched or agitated. At the end of nine hours, however, they were all entirely void of living power. While those which were retained in the air lived for twenty-four or twenty-six hours. The frogs lived four hours under the water, and five out of it. The experiment was varied by suffocating other reptiles of the same kind, their heads being closely hid up in a piece of bladder, instead of cutting out their hearts; and the result was in every instance consentaneous. Dr. Edwards hence concludes, and the conclusion seems well supported, that air has an influence on the economy of animals independently of its action through respiration: and that this influence is probably exerted through the medium of the skin *. And we may hence see why recovery from hanging is more frequent than from drowning under like intervals of protraction.

In respect to a direct contact with the atmospheric air.

Unfortunately, we have no means of determining whether the vital principle lies latent in the body or has utterly dropped its connexion. Want of heat is no more to be relied on than cessation of the pulse or of breathing: for while in submersion, heat in consequence of its rapid absorption by the surrounding elements, is one of the first properties of life that disappears, whether the patient recover or not; in death from convulsions and various other sudden causes, it often continues for hours, and

No positive means of determining whether the vital principle be latent or has dropped its connexion with the body. Absence of heat no proof: as protraction of heat under other circumstances is occasionally none.

* Mémoires sur l'Asphyxie considerée dans les Batraciens. Paris, 1817. Also, De l'Influence des Agens Physiques sur la Vie, &c. Paris, 8vo. 1824.

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sometimes even for days after the event, cheating the bystanders with an empty and unfounded hope of a restoration never to take place. The present author was a few years since sent for in haste, to a female domestic of Mr. Salmon of Mecklenburg Square, who however died under a convulsion-fit before his arrival. In the evening, nearly twelve hours afterwards, he was again requested to attend, as, notwithstanding the body had been laid out from the first and merely covered with a sheet, it still possessed a considerable degree of warmth. He was sorry to repress a hope which he found fondly and highly cherished, but the symptom was illusive, and the heat gradually disappeared. On the decease of a robust and corpulent lady whom he also attended in Bedford Row, and who died of a spasmodic asthma, this symptom continued, or rather showed itself afresh, eight and forty hours after death, so that the author was requested to attend at the time the body was on the point of being put into the coffin. In this case the heat was produced by putrefaction, for the body was livid and offensive. Bartholine has an example or two of the same kind; and the Ephemerides, among other cases less marvellous, one in which the heat is said to have continued till the fourth day after death: and which should no doubt fall within the solution just given*.

Further illustrated.

Perspiration and other secretions sometimes produced after death. Explained.

As heat has occasionally maintained itself for hours after death, so also has perspiration. Paullini mentions a case in which tears flowed from the eyes†; Riedlin another in which the eyes themselves recovered their brightness‡; and Hagendorn a third, in which the face swelled and looked red§. In all these cases we have proofs of a lingering of the irritable principle in particular parts after the sentient principle has totally disappeared. And hence, in a few instances some of the muscles have been thrown into irregular action, the penis has become

* Eph. Nat. Cur. Dec. II. Ann. IV. Obs. 18.
† Cent. III. Obs. 10. Franc. 1698, 8vo.
‡ Lin. Med. 1696. p. 203. § Cent. III. Obs. 46.

erect*, the jaws have opened and shut, as though masticating †; and, as is well known, the heart, when dissected from the pericardium, has leaped from the table.

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In attempting a CURE of suffocation BY SUBMERSION, the two grand means by which we are to operate are those of warmth and inflation of the lungs. The body should be quietly conveyed to a warm and dry situation, and rubbed all over with moderate stimulants, as diluted flower of mustard, or the warmer balsams; while the nostrils are plied with volatile ammonia, and the eyes exposed to a strong light. But a restoration of the action of the lungs is chiefly to be aimed at: and for this purpose, a full expiration of warm air from the lips of a by-stander, should be repeatedly forced into the patient's mouth, and his nostrils held close to prevent its escape by that channel. Inflation may also be attempted by a pair of common bellows; or, which is far better if it can be readily procured, by a pair of bellows communicating with a pipe introduced into the larynx, or, as some have recommended, into an aperture made between the rings of the trachea. Stimulating injections of acrid purgatives, of camphor, ammonia, and brandy, or other spirits, have often been introduced with success into the rectum, and sometimes injections of warm air alone: and it would be better that the air introduced into the lungs should be also moderately warm. Besides this active process, it may be possible to convey some warm and cordial stimulant, as volatile alkali, or the compound spirit of lavender, into the stomach by means of a syringe; or what may probably in this case answer better, by a piece of sponge, impregnated with one of these, fixed to the end of a small rod of whalebone: for the sides of the stomach may be, so to speak, mopped round by the sponge thus charged, and stimulated in every direction. In the Berlin Transactions is recommended the use of a *ventriculi excutia*, or stomach-brush, to produce internal friction in the same

Medical treatment: warmth: inflation of the lungs: friction and stimulants.

Means of inflating the lungs.

Stimulating injections.

Stimulants to be conveyed into the stomach, and how.

Ventriculi excutia, or stomach-brush, what.

* Eph. Nat. Cur. Dec. I. Ann. IX. X. Obs. 34. 158.

† Commerc. Nor. 1732, pp. 82. 90. 173.

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manner: but the stomach-mop, prepared as above, will be found a more serviceable contrivance.

There is no family of diseases in which the internal use of phosphorus seems to promise more success. The German physicians have employed it very generally in the last ebb of typhous fevers, in apparent death from convulsion*, and in most cases in which the nervous fluid has seemed to be suddenly discharged as by an explosion, or not secreted at all, and they have often employed it with success. It is one of the most powerful stimulants we know, and in asphyxy should be given to the amount of two or three grains for a dose, dissolved in ether.

Phosphorus.

Venesection when advisable.

Venesection, and especially that of the jugular vein †, has been strenuously recommended by physicians of high authority; and, wherever there is reason to believe that the drowning has followed upon a sudden fit of apoplexy, the recommendation is rational enough, provided it can be practised with effect. But, commonly speaking, it is advice to no purpose, for the blood will not flow: and, in other cases, if it would, such depletion, we have reason to believe, would do more injury by weakening, than good by removing what is erroneously supposed to be congestion. It may occasionally, perhaps, be serviceable as soon as the living powers begin to show themselves, but it is rarely to be tried in the first instance.

Signs of returning life,

Returning life is first usually discoverable by the symptoms of sighing, gasping, twitching, or subsultus, slight palpitation, or pulsation of the heart; in effect by a weak or clonic action in most of the organs. Our efforts should here be redoubled, for the feeble spark still requires to be solicited and nourished into a permanent flame—and has often disappeared from a relaxation of labour. A spoonful or two of warm wine, or wine and water, should now be given by the mouth as soon as the power of swallowing is sufficiently restored; which should be shortly succeeded by a little light, warm, and nourishing food of any kind,

how to be encouraged.

* De Phosphori, loco Medicamenti adsumpti, virtute medicâ, &c. Anat. J. Gabi, Mentz.

† Jo. Wences Nachtigal, Dissertatio de Submersis. Vindobon. 8vo.

with gently laxative clysters, a well-heated bed, and perfect tranquillity.

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I have dwelt the longer upon this subject because the general principles of the remedial treatment here recommended, apply to most of the other varieties under which asphyxy or suspended animation is to be traced: and the reader who is desirous of following the operative plan into a still minuter detail, will do well to consult Dr. Cullen's letter to Lord Cathcart, the president of the Board of Police in Scotland, concerning the recovery of persons drowned and seemingly dead; an able extract of which is given in the Medical Commentaries of Edinburgh*. We may observe, however, that in attempting the recovery of those who have been hung, and particularly who have inexpertly hung themselves, bleeding from the jugulars may be more frequently found necessary than in attending the drowned, since in the former, as we have very fully observed above, there is a greater tendency to apoplectic symptoms than in the latter: yet even here the quantity abstracted needs not be large.

Same treatment applicable to most of the modes of suspended animation. Other directions to be found in Cullen's letter to Cathcart.

β C. Asphyxia mephitica. Choke-damp. Surface of the body mostly pale, and why. Sometimes combined with apoplectic symptoms, and why. Meaning of choke-damp.

In the SECOND VARIETY of asphyxy, or that from an inhalation of irrespirable auras, death in many cases takes place instantaneously; and, consequently, for reasons already advanced, the general surface of the body, and even the countenance itself, is pale†. Yet as the gass is often in some degree diluted with atmospheric air, the circulation, and even the breathing are occasionally continued for some time in a feeble and imperfect state, and the asphyxy is united with symptoms of apoplexy, or genuine apoplexy takes place in its stead. In Cornwall and other mining regions, these gasses are vulgarly called *damps*, from the German *dampff*, "a vapour or exhalation."

By what means the inhaled vapours prove instantaneously destructive, not very clearly ascertained.

The direct effect of such gasses, when in a concentrated state, is utterly and instantaneously to destroy the irritability and sensibility of the nervous system, of which we have perpetual examples occurring in persons who

* Vol. III. p. 248.

† Brukser von den ungewissheit der Kennzeichen des Todes.

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incautiously descend foul beer-casks, or the shafts of mines. By what means, however, such exhalations when they have penetrated the lungs become so rapidly communicated to the nervous system as to prove instantly destructive, we do not seem to be very well informed.

Difficulties attending the hypothesis of absorption.

Absorption would be the most ready way of accounting for it, but till the objections thrown out by Mr. Ellis against an absorption of oxygene or any other gass by the lungs, and which we have noticed in the Physiological Proem to our second Class, are more satisfactorily replied to than they appear to have been, it is an hypothesis that can hardly be allowed. In the case of hanging or drowning, it does not seem to be owing to a direct want of irritability that the heart ceases instantly to contract, but, as we have already remarked, to its being deprived of the necessary stimulus which is no longer afforded by the lungs, however they may act, in providing it.

Apparently a total abstraction of both sensific and motific power.

Yet in the present case there seems to be not only a cessation of action, for want of a proper stimulus, but a total abstraction of both sensific and motific power: and this as completely in one part of the frame as in another.

Gasses most deleterious.

The gasses of the description before us that are found most fatal, are the carbonic acid, hydrogene, nitrogene, and several of a more compound kind which are thrown forth from putrefying animal and vegetable substances,

Deadly halitus from putrefying graves:

and especially from cemeteries, on opening fresh graves, in which the process of decomposition is proceeding rapidly, and the concentrated effluvium bursts forth with an intolerable stench. Of the powerful effects of this last exhalation, Fourcroy has furnished us with a very particular and striking account from the narration of

its instant operation.

grave-diggers examined for the purpose: from which it appears that those who are immediately hanging over a corpse, whose abdomen is accidentally struck into by a pick-axe, often fall down instantly in a state of senselessness and apparent death, while persons who happen to be at a little distance, and receive the exhalation in a form diluted with atmospheric air, are attacked with nausea,

vertigo, faintness, and tremors, which continue for some hours.

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The most common of these gasses is the carbonic acid, which is chiefly found in the guise of a torpefying vapour in close rooms where charcoal has been burnt, at the bottom of large beer-casks, or of wells, and in many natural caverns in the earth's surface. Its weight prevents it from escaping readily, even where there is an accession of atmospheric air; and its want of smell, when pure, prevents it from being detected otherwise than by its effects. As it will not support flame, the common and easiest test, where it is suspected to exist, is that of a lighted candle, which is well known to be extinguished immediately, if this gass be present in a quantity sufficient to be injurious to respiration.

Carbonic acid gass most common: where chiefly found.

Prevented by its weight from escaping easily: and undiscernible by smell.

Its best test whether it will support or extinguish flame.

Nitrogene and hydrogene, when pure, have probably as little smell as carbonic acid gass; but they are generally combined with other gasses, sulphur, carbone, or phosphorus. The first, formerly denominated phlogistic air, and sometimes mofette, is thrown forth largely during the decomposition of animal matter, and in a small degree during that of vegetable matter. Combined with hydrogene it forms ammonia; with oxygene, nitric acid. Fourcroy asserts that it possesses a peculiar and distinct odour resembling that of fishes just beginning to putrefy; but this is probably at all times produced by its combination with other materials. It seems chiefly concerned in giving the greenish colour to parts, and especially muscular parts, in a putrid state. In some gasses of this kind a candle will burn freely.

Nitrogene formerly phlogistic air.

Whether it possess a specific odour.

Hydrogene issues also from fecal matter, and, in combination with sulphur, phosphorus, and carbone, produces the chief part of the nauseating and putrid stench thrown forth from decomposing animal and vegetable substances. It is emitted in a much purer state from the sides of coal and metallic mines, and often exists in considerable abundance without being perceived by the nostrils. If mixed with an equal proportion of oxygene, it may be breathed for about an hour without any great inconve-

Hydrogene its offensive odour in combination with other materials.

How far respirable.

GEN. VIII. SPEC. I. β C. Asphyxia mephitica. Choke-damp. Metallic fumes.

nience. If inhaled beyond this time, or in a more concentrated form, it has a great tendency to occasion the effects we have just noticed, lower the irritability of the animal frame, and induce stupor or an inclination to sleep.

The fumes of mercury, lead, and some other metallic substances, when highly concentrated, seem to operate not very dissimilarly to those of charcoal, and give a check to the mobility of the nervous power at once.

Fumes of charcoal operate differently according to their degree of concentration or other circumstances. Illustrated.

The fumes of charcoal are generally inhaled in a diluted form, but they are still highly deleterious and produce asphyxy more or less complete, according to their degree of concentration, and in some cases according to the strength or weakness of frame of those who are exposed to them. We have a striking illustration of this in the case of two persons communicated by Dr. Babington to the Medico-Chirurgical Society, who had gone to bed in a room in which a charcoal fire was kept up through the whole of the night, with whose gass the surrounding atmosphere was strongly impregnated. According to the principle we have endeavoured to establish, we ought here, from the dilution of the vapour, to expect that whatever tendency there might be to asphyxy would be united with a tendency to apoplexy. And such we find to have been the fact: for, of these two persons, the younger and less vigorous, a boy of thirteen, died apparently during his sleep, and without commotion: while the elder and more robust, a man of thirty-eight, was found, upon being called in the morning between six and seven, in an apoplectic state, with a swollen, projecting tongue, suffused and prominent eyes, and laborious breathing.

Treatment of this modification of asphyxy.

The patient, if any degree of sensibility remain, should in this variety be freely exposed to the open air, instead of to a heated atmosphere as in the preceding: and, if he can swallow, acidulated liquids should be given him. If insensible, cold water should be dashed on his face; strong vinegar, and especially aromatic vinegar, be rubbed about his nostrils, and held under them, and stimulating clysters be injected, as recommended under the first variety. The lungs should be inflated with the warm

breath of a healthy man, or, which is better, with oxygene gass.

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A proper use of voltaic electricity is also in many instances found highly serviceable as a nervous stimulant. No advantage, however, is likely to accrue from passing the electric aura across the chest, directly through the heart and lungs, which is a common practice. The fluid should be transmitted along the channel of the nerves, from the seat of the phrenic nerve in the neck, to the seat of the diaphragm, or that of the par vagum and great sympathetic nerve immediately under the sterno-mastoid muscle, where they lie in a common sheath, and send forth branches to the heart *. In Dr. Babington's case, the application of voltaic electricity surprisingly increased the power of the muscles of respiration, but appeared rather to diminish the action of the heart. It was hence used alternately with a forcible inhalation of oxygene gass, and various external stimulants. Venesection was tried, but does not seem to have been beneficial. The man recovered in a few days.

Voltaic electricity, how to be applied. Treatment.

M. Portal recommends a division of the jugular vein, but the blood will rarely flow from any vein, and is still more rarely succeeded by any advantage even where it is obtained. And if every other remedy fail, he advises bronchotomy, and a scarification of the feet and hands †.

Division of jugular vein how far advisable: bronchotomy, and scarification.

The sprinkling or dashing of water upon the body seems to be useful on two accounts; first, from having a tendency to rouse the vessels on the surface to contract; and next as affording an opportunity for a disengagement of oxygene.

Affusion of cold water.

In the THIRD, or ELECTRIC VARIETY, the whole system appears to be not so much rendered inirritable to stimulants, as to be suddenly exhausted of its entire stock of nervous power, like a Leyden phial upon an application

γ C. Asphyxia electrica. Electrical asphyxy. How operates.

* Greg. Consp. Med. Theor. Hüfeland, Diss. usus Ver. Elect. in Asphyxiâ. Goet. 1783.

† Observations sur les Effets des Vapours Mephytiques sur les Corps de l'Homme, &c. nouv. edit. Paris, 1774.

GEN. VIII. SPEC. I. γ C. Asphyxia electrica. Electrical asphyxy.

of the discharging rod: in consequence of which the limbs are flexible, the countenance pale, and the blood uncoagulable. The mode in which the electricity is communicated is of little importance; for, if sufficiently powerful for the purpose, real or apparent death is instantaneously produced, whether the stroke flow from lightning, an electric battery, or a voltaic trough; and every organ is equally affected and emptied.

Effects alike in animals under every like degree of intensity, whatever the form employed.

Upon plants, on the contrary, we often find a stroke of lightning of the same intensity occasion very different effects in different kinds or branches of the same plant, in consequence of the variety they exhibit as conducting powers. Upon some, it descends without mischief; in others, it exhausts itself on particular parts, which are withered, as though attacked by a hemiplegia. In the betula *alba* or common birch, it never runs along the stem, but confines its stroke to the top alone, beating off the boughs in every direction.

Operates with different effects in different plants.

If in animals the intensity differ, the effect differs too. Exemplified.

In animal life, however, there is also a difference of effect, but only in proportion to the degree or intensity of the electric power that attacks the system; and it is curious to observe the nature of this effect. Small doses of electricity prove a powerful stimulus to the nervous function, increase the flow of sensorial fluid, and augment the irritability of the muscles: while a violent shock, as we have just seen, exhausts the nervous system instantaneously, carries off the entire stock from the animal fabric, and leaves the muscular fibres flaccid and flagging. This singular result is extended to the blood, and extended to it in both cases: for its coagulability, or the firmness of its texture, is increased by the application of small doses of electricity, while the shock of lightning which renders the muscles lax and uncontracted renders the blood loose and uncoagulable. It is to this variety of effect that Mr. John Hunter makes a powerful, and certainly a very impressive appeal, in proof that the blood, though a fluid, is actuated by the same living principle as the muscular fibres.

Medical treatment.

The general principle of medical treatment has been

laid down under the first variety. Stimulants of the most active kind should be resorted to without loss of time: but of all stimulants that of electricity, or voltaism, seems to be especially called for in the present modification of asphyxy. I do not know that it has ever been tried to any great extent, in the variety before us, on the human subject, but M. Abildgaard, in the Transactions of the Copenhagen Medical Society, has related a few experiments on other animals that are well worthy of attention, and were found highly beneficial. The animals chiefly selected were from the poultry-yard, and consisted of cocks and hens. These were first rendered asphyctic, or apparently dead, by a strong shock of electricity passed through the head; and afterwards recovered by another shock passed through from the chest to the back, the animal instantly walking about as if nothing had happened. M. Abildgaard does not say what interval he allowed between the shocks thus administered: but he observed that where no second shock was employed, the apparent was converted into real death, for the animal, in no instance, showed any tokens of resuscitation: and he observed farther that, if the second shock were thrown through the head like the first, instead of from the chest to the back, the same lifelessness continued, and no benefit whatever was produced *.

Gen. VIII. Spec. I. γ C. Asphyxia electrica. Electrical asphyxy. Medical treatment. Electricity in a smaller degree than what caused the asphyxy. Illustrated.

In FROST-BITTEN ASPHYXY, or that produced by intense cold, the limbs are rigid, and the countenance pale and shrivelled. This variety is always preceded by an insurmountable desire to sleep, which the utmost exertion of the will is unable to overpower. The sleep is, in most cases, fatal, and becomes the sleep of death †. Captain Cook, in the account he has given of his first voyage round the world, has strikingly exemplified this remark in the case of Dr. Solander and Mr. (afterwards Sir Joseph) Banks. "Dr. Solander," says he, "who had more than

δ C. Asphyxia algida. Frost-bitten asphyxy. Always preceded by an insurmountable desire to sleep; the sleep proving fatal. Illustrated from Captain Cook's Voyage.

* Societatis Med. Havniensis Collectanea, &c. Vol. II. Art. Tentamina Electrica in Animalibus.

† Rhazes ad. Almans. Tract. VI. Cap. V. vii.

GEN. VIII. SPEC. I. } C. Asphyxia algida. Frost-bitten asphyxy.

once crossed the mountains which divide Sweden from Norway, well knew that extreme cold, especially when joined with fatigue, produces a torpor and sleepiness that are almost irresistible; he therefore conjured the company to keep moving whatever pain it might cost them. 'Whoever sits down', said he, 'will sleep, and whoever sleeps will wake no more.' Dr. Solander himself was the first who found the inclination, against which he had warned others, irresistible, and insisted upon being suffered to lie down. He soon fell into a profound sleep, from which, however, by the exertion of Mr. Banks, he was awakened. Several others of the party very narrowly escaped; and two of them slept, and perished from the cold."*

Effect explained.

For these symptoms, and their effects, it is easy to account. Cold, so long as the living power is capable of producing a reaction, is one of the most strenuous tonics we are possessed of, and the glow that accompanies the reaction, is felt to be peculiarly vigorous and elastic. But if it exceed this proportion and no reaction ensue, the contraction of the vessels on the surface is converted into a rigid spasm, the blood is driven into the interior, and the surface must necessarily be pale. In this extremity of temperature, moreover, cold, instead of being a tonic, is one of the most formidable sedatives in animal chemistry: it carries off the heat of the body far more rapidly than it can be recruited, and as effectually exhausts it of all its irritable and sensible power. But such exhaustion, as we have already shown under the genus PARONIRIA, is a cause of stupor or sleep, and a cause so cogent that the will is, in many cases, incapable of resisting it, and falls a prey to its power.

Medical treatment.

In applying remedial means to this modification of asphyxy, great caution is necessary respecting the employment of warmth; and particularly where the limbs are peculiarly rigid, and under the influence of frost. In this last case it will be generally found most advisable, in the

* Hawkesworth's Account of Voyages, Vol. II. p. 46.

first instance, as in frost-bitten limbs, to plunge the body for a few minutes into a bath of cold sea-water or salted water, at the same time that warm air may be breathed into the lungs, and the stomach and rectum gently excited by moderate stimulants: for it does not follow that, because the limbs and surface of the body are frozen from frost-bite, the central parts have suffered to the same extent. After a short emersion in sea-water the body should be taken out, wiped perfectly dry, laid in flannel in a moderately warm room, and submitted to the friction of warm hands, several persons being engaged in this process simultaneously.

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SPECIES II.

CARUS ECSTASIS.

Ecstasy.

TOTAL SUSPENSION OF SENSIBILITY AND VOLUNTARY MOTION; MOSTLY OF MENTAL POWER; PULSATION AND BREATHING CONTINUING: MUSCLES RIGID: BODY ERECT AND INFLEXIBLE.

Gen. VIII. Spec. II. Many of the species closely connected and apt to run into each other, or to exhibit aggregate symptoms. Hence differently arranged, by Sauvages, Mead, Cullen and Cheyne: Cooke: Young:

THERE is so close a connexion between the present and the ensuing, and, in truth, most of the ensuing species of the order before us, that they are occasionally apt to run into each other, or to exhibit a few aggregate symptoms. And on this account they have been very differently arranged by different writers. Sauvages, and most of the continental nosologists, have regarded them as distinct genera. Dr. Mead and Dr. Cullen, as species or subdivisions of apoplexy, and Dr. Cheyne, as the same of lethargy. Dr. Cooke has treated of them more cursorily than those who are acquainted with his talents and learning could wish: and has so far followed Dr. Cullen as to place them conjointly in a chapter under the head of apoplexy: while Dr. Young, coinciding with the view taken

GEN. VIII. SPEC. II. Carus Ecstasis. Ecstasy.

in the present work, has arranged the whole as a species under the generic name of CARUS.

General physiology. Sensorial powers different and differently disturbed:

To understand the nature of their distinctive symptoms, and the reason of their occasional combination, it is necessary to bear in mind the remarks offered in the Physiological Proem to the present class respecting the natural division of the nervous ramifications into fibres of different sets and powers, and the different kinds of fluids which these several sorts are capable of secreting or conveying, as sensific and motific fibres, and sensific and motific fluids: since it happens that some of these diseases are confined to one set, and others to another, while other diseases, again, extend equally to both. And hence we are able to account for disorders in which the perception or sensibility is abolished, while the irritability continues without much interference: or in which there is a disturbed flow or total cessation of the irritable power, with little interference with the percipient, and sometimes also with the sentient, as in some cases of paralysis: or in which there is a disturbance or cessation of all these, with the exception of a partial supply of irritative power to the involuntary organs. It will also be necessary to recollect, as we have endeavoured to show in many of the preceding pages, and particularly under the genus CLONUS, that where there is a disturbance in the flow of the motific or irritative power, this disturbance is of two kinds, one from excess, and one from deficiency; and that in both cases there is a great irregularity of action, and consequently entastic or rigid, and clonic or agitatory spasms, exhibiting, by their continuation, innumerable modifications.

chiefly from excess and from deficiency.

General tendency to sympathize in different divisions of the nervous system.

All the divisions of the nervous system, moreover, have a natural tendency to sympathize in the same action, however combined or interchanging; and hence in whatever division of it a disease commences, one or more of the other divisions are peculiarly apt to participate in the affection: and the more so as it is not very common for abnormal actions, when once communicated, to proceed with much order or regularity; for if trismus and tremor

give us examples of such order, tetanus very generally, convulsion-fit, epilepsy, and hysteria furnish proofs of the most capricious alternations of spastic and clonic action, or of their existing in different trains of muscles simultaneously.

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These remarks peculiarly apply to ECSTASY, the species immediately before us, compared with CATALEPSY or TRANCE, the species that immediately follows. In both, the nervous fluids contributory to sensibility and irritability are disturbed in their flow or regularity of action, but not equally, nor in the same manner: for while the flow of the former seems to be totally suspended, that of the latter continues, though with a striking deviation from the uniform tenour of health. Thus far the two diseases agree. They differ in the nature of the disturbance of the motific fluid. In ecstasy, this seems to be secreted in excess and irregularly accumulated; in consequence of which the muscles are thrown into a rigid and permanent spasm, not incurvating the body, as in the different modifications of tetanus, but maintaining it erect from an equal excess of supply to the extensor and flexor muscles. In catalepsy, on the contrary, the motific fluid seems to be secreted in deficiency rather than in excess, though it is often irregularly distributed; and hence, while some muscles appear sufficiently supplied, the action of others, even the involuntary ones, is often peculiarly weak. Whence, also, the limbs, instead of resisting external force, yield to it with readiness, and assume any position that may be given to them.

These remarks peculiarly applicable to ecstasy compared with catalepsy.

How far the two agree.

Wherein they differ.

In both cases the torpitude of the external senses, appears to extend to those of the mind; for the patient, on returning to himself, has no recollection of any train of ideas that occurred to him during the fit. Yet, we shall find presently that in a few instances, the power of sight and of judging, and perhaps some other powers, do not seem completely to have failed.

In both the mind and external senses equally torpid in general: yet not always.

It deserves, however, to be specially remarked, that both these diseases are most common to persons constitutionally disposed to some mental estrangement, as melan-

Both diseases most common to persons predisposed

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choly or revery, hypochondrism, or morbid elevation of mind; thus pointing out to us the outlet at which the sensorial power is often carried off: for we have already seen that, under intense revery, the external senses are, for the most part, inactive or torpid to the impressions of surrounding objects during wakefulness: while the mind is alike dead to every thing but the train of ideas which immediately constitute the subject of the revery. The same tendency to abstraction, though not carried so completely into effect, is often to be found in MELANCHOLY, and still more so in that species of ALUSIA which, in the present work, is denominated ELATIO, mental elevation or extravagance, and particularly the variety called ELATIO ECSTATICA, false inspiration, visionary conceits. If the person labouring under any of these be attacked at the same time with a general entasia, or rigid tetanus, erecting instead of incurvating the body, he will be thrown into an ecstasy, constituting the present species. And if, instead of an excessive there be a deficient supply of irritable power, and consequently a flaccidity or flexibility of the muscles instead of a rigidity, his disease will be a catalepsy, constituting the ensuing species, with this difference alone, that in most cases of the two diseases before us, the faculties of the mind unite in the torpitude of the senses, instead of giving rise to it.

to mental estrangement: conclusion to be drawn from this. Illustrated.

I say, in most cases, and have kept to the same limitation in the specific definition: for if it be true that one of the causes of both these affections is profound contemplation or attention of mind, or some overwhelming passion, as we are told by many writers, the mind does not seem, in such cases, to be without ideas, nor without them in a very energetic degree. And it is to ecstasis under this modification that I am inclined to think we should refer the CATOCHUS of most of the nosologists, which they arrange in the same order as, and next to tetanus, and define a "general spastic rigidity without sensibility."

Catochus what.

Ecstasis is of rare occurrence, its predisponent cause is unquestionably a highly nervous or irritable tempera-

Predisponent cause of ecstasis.

ment: the exciting or occasional causes it is not easy, at all times, to determine. For the greater part they seem to be of a mental character, as profound and long continued meditation upon subjects of great interest and excitement; and terror or other violent emotions of the mind. It seems also to have proceeded, like most of the spasmodic affections already treated of, from various corporeal irritations, and particularly those of the stomach and liver, suppressed menstruation, repelled chronic eruptions, and plethora: and perhaps occasionally, as hinted by the younger M. Pinel, from an inflammation of the spinal marrow *. The duration of the fit varies, from a few hours to two or three days. The patient rouses as from a sleep, seems languid, and complains of nausea and vertigo:—evidently showing that the morbid supply of sensorial power is exhausted, and that the spasm has ceased in consequence of such exhaustion.

Gen. VIII. Spec. II. Carus Ecstasis. Ecstasy. Exciting cause.

As the disease evidently consists in a disturbance of the balance of the sensorial power, or in an excessive secretion of irritable, but a deficient or suspended secretion of sensific fluid, the curative intention should lead us to aim at a restoration of this balance: and hence the remedial process will run so nearly parallel with that for tetanus that it is only necessary to refer the reader to the treatment already laid down for that disease.

Remedial intention.

Where catalepsy is connected with a morbid state of the liver, mercury given to ptyalism has often proved highly successful. Dr. Chisholm has given a very interesting case of this kind in a young lady of eighteen of an hysterical diathesis, and in whom the ecstasy or paroxysm of rigidity was alternated with paroxysms of mania. "At the end of ten minutes the patient suddenly started up in bed, the muscles became at once relaxed, but maniacal distraction of mind instantly succeeded. During the maniacal state, now, it was particularly singular that, although she could not articulate a single word, and was

Where connected with a morbid state of the liver, mercury useful.

Interesting case from Chisholm.

* Journal de Physiologie Experimentale, par F. Magendie, D.M. &c. Tom. I. Janv. 1821.

GEN. VIII. SPEC. II. Carus Ecstasis. Ecstasy.

evidently unconscious of what she did, yet she sung some very beautiful airs with a sweetness of tone and correctness of measure extremely interesting and affecting; at the end of ten minutes her head suddenly and unexpectedly dropped, and she fell back into the state of rigidity."* She finally recovered by the use of mercury employed as above.

SPECIES III.

CARUS CATALEPSIA.

Catalepsy. Trance.

TOTAL SUSPENSION OF SENSIBILITY AND VOLUNTARY MOTION; MOSTLY OF MENTAL POWER; PULSATION AND BREATHING CONTINUING; MUSCLES FLEXIBLE: BODY YIELDING TO, AND RETAINING ANY GIVEN POSITION.

GEN. VIII. SPEC. III. How distinguished from the preceding species.

THIS species is chiefly distinguished from the preceding by the flexibility instead of inflexibility of the muscles. The cause of this difference has been explained under the preceding species, and needs not be repeated in the present place. The specific term common to the Greek writers is

Origin of the specific name.

derived from *καταλαμβάνομαι*, "deprehendor," "to be seized or laid hold of," and alludes to the suddenness of its attack.

Predisponent and exciting causes.

The predisponent and exciting causes are the same as those of ecstasis: and the state of the habit or idiosyncrasy alone produces the difference of effect.

Description.

The countenance is commonly florid, and the eyes open, and apparently fixed intently upon an object, but in most cases without perception. Yet here, as in ecstasis, we some-

* Of the Climate and Diseases of Tropical Countries, p. 160. 8vo. Lond. 1822.

times meet with examples in which one or more of the senses, mental as well as corporeal, do not associate in the general torpitude. So, in paroniria, the sight or hearing continues awake, while the other external senses are plunged into a deep sleep, and, in some cases of paralysis, the sentient fibres retain their activity while those of motion are torpid.

Gen. VIII. Spec. III. Carus Catalepsia. Catalepsy. Trance.

The paroxysm commonly attacks without any previous warning, and closes with sighing or a clonic effort of the nervous power to re-establish its regular flow. Its duration is from a few hours, or minutes, to two or three days; and, according to well established authorities, sometimes for a much longer period. And so completely exhausted of irritable power are some of the organs, and even those of involuntary action, that we have one example in a foreign journal of forty grains of emetic tartar having been given without any effect *.

Progress of the paroxysm. Duration. Wonderful exhaustion of irritable power.

The disease, like the last, is not common. Dr. Cullen, affirms that he never saw an instance of it, except where it was altogether counterfeited, and asserts the same of other practitioners: which, in fact, he offers as an apology for not knowing exactly where to arrange it. "Therefore," says he, "from the disease being seldom, differently described, and almost always feigned, I can scarcely tell where to place it with certainty: but I am well persuaded that it does not at all differ from the genus apoplexy, and I have hence arranged it as a species of this division." Plethora or pressure of the brain may, perhaps, be an occasional cause of this, as of most other nervous diseases, in some habits; but the greater number of cases that have occurred show very clearly that this disease, in its genuine form, is as distinct from apoplexy as from epilepsy.

Disease of rare occurrence: and hence its place misarranged by Cullen; who regarded it as a subdivision of apoplexy.

We have said that both catalepsy and ecstasy are most frequently found in constitutions disposed to mental estrangements. Dr. Gooch has given a very interesting case in illustration of this remark in his paper on puerperal

Mostly found like ecstasy in constitutions disposed to mental estrangement. Striking illustration.

* Behrends, Baldingers, N. Magazine. B. IX. 199.

GEN. VIII. SPEC. III. Carus Catalepsia. Catalepsy. Trance.

insanity published in the Medical Transactions. The patient was twenty-nine years of age, had been often pregnant, but had only borne one living child; and was now confined after delivery of a dead child in her seventh month of gestation. "A few days after our first visit," says Dr. Gooch, "we were summoned to observe a remarkable change in her symptoms. The attendants said she was dying or in a trance. She was lying in bed motionless, and apparently senseless. It had been said that the pupils were dilated and motionless, and some apprehensions of effusion on the brain had been entertained. But, on coming to examine them closely, it was found that they readily contracted when the light fell upon them; her eyes were open, but no rising of the chest, no movement of the nostrils, no appearance of respiration could be seen; the only signs of life were her warmth and pulse: the latter was, as we had hitherto observed it, weak, and about 120; her feces and urine were voided in bed.

"The trunk of the body was now lifted so as to form rather an obtuse angle with the limbs (a most uncomfortable posture), and there left with nothing to support it. Thus she continued sitting while we were asking questions and conversing, so that many minutes must have passed.

"One arm was now raised, then the other, and where they were left, there they remained; it was now a curious sight to see her, sitting up in bed, her eyes open, staring lifelessly, her arms outstretched, yet without any visible sign of animation; she was very thin and pallid, and looked like a corpse that had been propped up, and had stiffened in this attitude. We now took her out of bed, placed her upright, and endeavoured to rouse her by calling loudly in her ears, but in vain; she stood up, but as inanimate as a statue; the slightest push put her off her balance; no exertion was made to regain it; she would have fallen if I had not caught her.

She went into this state three several times, the first time it lasted fourteen hours, the second time twelve

hours, and the third time nine hours, with waking intervals of two days after the first fit, and one day after the second. After this, the disease resumed the ordinary form of melancholia, and three months from the time of her delivery, she was well enough to resume her domestic duties."

Gen. VIII. Spec. III. Carus Catalepsia. Catalepsy. Trance.

From the rarity of the complaint and the singularity of many of its symptoms, many physicians who have never witnessed an example of it, are too much disposed, like Dr. Cullen, to regard it in every case as an imposture. The instance just given is sufficient to clear it from this charge; yet the following from Bonet is added in confirmation. George Grokatski, a Polish soldier, deserted from his regiment in the harvest of the year 1677. He was discovered a few days afterwards, drinking and making merry in a common ale-house. The moment he was apprehended he was so much terrified that he gave a loud shriek and was immediately deprived of the power of speech. When brought to a court-martial, it was impossible to make him articulate a word: he was as immoveable as a statue, and appeared not to be conscious of any thing that was going forward. In the prison to which he was conducted, he neither ate nor drank, nor emptied the bowels or the bladder. The officers and the priest at first threatened him, but afterwards endeavoured to soothe and calm him; but all their efforts were in vain. He remained senseless and immoveable. His irons were struck off, and he was taken out of the prison, but he did not move. Twenty days and nights were passed in this way, during which he took no kind of nourishment, nor had any natural evacuation. He then gradually sunk and died *.

From the singularity of its symptoms often regarded as an imposture; yet sometimes wrongfully.

Additional illustration.

The pliability of the muscles to any stimulus that acts upon them is sufficiently evident from both these cases: but it has not been generally observed by pathologists that the force of the stimulus which is acting upon them at the time of the attack continues afterwards, so that the

Singular power in the muscles of retaining a given position or even state of motion.

* Medic. Septentrion. Lib. i. Sect. xvi. Cap. 6.

GEN. VIII. SPEC. III. Carus Catalepsia. Catalepsy. Trance. Illustrated.

same state of motion or rest is still maintained. In the case of a school-boy aged eleven years, related by Mr. Stearns in the American Medical Register*, the paroxysms returned ten times in twenty-four hours, and never exceeded three minutes at a time. And if it commenced while the patient was walking, the same pace was maintained, though without the direction of the mind.

Further illustration.

The present author was consulted a few years ago on a similar case by a student of Gray's Inn, about nineteen years of age. Having been attacked with a fit of catalepsy while walking, within a few minutes after having left his chambers, he continued his pace insensibly, and without the slightest knowledge of the course he took. As far as he could judge, the paroxysm continued for nearly an hour, through the whole of which time his involuntary walking continued; at the end of this period he began a little to recover his recollection and the general use of his external senses. He then found himself in a large street, but did not know how he got there, nor what was its name. Upon inquiry he learned that he was at the further end of Piccadilly near Hyde Park corner, to which, when he left his chambers, he had no intention of going. He was extremely frightened, very much exhausted, and returned home in a coach. He was not conscious of any particular train of ideas that had passed in his mind during the fit; but if such there had been, there can be little doubt that, like the visions of a dream, the reminiscence of them would have been completely banished by the terror he felt on first recovering his recollection and finding himself in a strange place, to which he had been irregularly wandering through a great number of streets without consciousness. He had several slighter attacks antecedently, shorter in duration, and, from his being at rest at the time, unaccompanied with a tendency to perambulate.

In these and similar cases the

In this case, and in all of a similar kind, from the power which the patient seems to possess of avoiding

* Vol. I. Art. VIII.

GEN. VIII. SPEC. III. Carus Catalepsia. Catalepsy. Trance.

danger, the faculty of the will and of sight, must be in some degree of activity, however obtunded: bearing a near resemblance to paroniria *ambulans*, or sleep-walking, with the exception of the suddenness of the attack. Some pathologists, indeed, have noticed a modification in which the powers of deglutition and digestion continue, as well as those of pulsation and breathing, provided the food be thrust into the mouth. If we were right in ascribing the CATOCHUS of the ancients to that form of ecstasy in which the mind retains some train of ideas, we shall probably be right also in referring their CATOCHE to this modification of catalepsy; though Galen seems to have regarded the term as a mere synonym of catalepsy, and Ætius adopted his opinion.

faculty of the will and the sense of sight must be in some degree of activity.

Some power of deglutition sometimes preserved.

Catoche, what.

Instead, however, of most of the involuntary organs being in a joint state of activity, instances have occasionally occurred of an apparent cessation of activity in all of them, from the scanty as well as irregular flow of the sensorial current. A critical examination of the region of the heart will mostly, indeed, give proof of a very feeble flutter, and if a clear mirror be applied to the mouth and nostrils it will generally be found to have a thin vapour on its face. But even these signs have not always been given: insomuch that the disease has been mistaken for real death: and, in countries where the rite of sepulture takes place speedily, it is much to be feared that the unfortunate sufferer has, in a few instances, been buried alive*. In a case of asphyxy of a singular kind, related by M. Pew, the patient, a female, was peculiarly fortunate in having had her interment postponed for the purpose of ascertaining the cause of her supposed death by dissection: for on being submitted to the scalpel, its first touch brought her to her senses, and threw her into a state of violent agitation, the anatomists being almost as much frightened as herself†. So Diemerbroeck re-

In other cases an utter inactivity in all the involuntary organs.

Hence the disease has been mistaken for real death, and the unfortunate sufferer been sometimes interred alive.

Singular example of escape.

Additional illustrations.

* Pineau, Sur le Danger des Inhumations precipitées, Paris, 1776.

† Pratique des Accouchemens, &c. Tozzett's Raccolta de Teorie, Osservazioni e Regole per distinguere e promptemente dissipare le Asphyssie, a Morte apparente. Fiorenza. 8vo. 1772.

GEN. VIII. SPEC. III. Carus Catalepsia. Catalepsia. Trance.

lates the case of a rustic, who was supposed to be dead of the plague, and was laid out for interment. It was by accident three days before he could be carried to the grave, when, in the act of being buried, he shewed signs of life, recovered, and lived many years *. Mathæus, Hildanus, and the collectors of medical curiosities are full of stories of this kind: many of them, indeed, loosely related; but many also possessing every requisite authority for belief: and urging the necessity of waiting for signs of putrefaction before the lid of the coffin is screwed down, or, I should rather say, before the body is removed from its death-bed.

Hence the necessity of great caution in obtaining signs of putrefaction before closing the coffin.

Predisposing and exciting causes those of ecstasy: the difference of effect produced by the habit or idiosynerasy. This not sufficiently attended to in the therapia. Medical treatment.

We have already observed, that the predisposing and exciting causes are the same as those of ecstasy, and that the state of the habit or idiosyncrasy alone produces the difference of effect. This distinction has not been sufficiently attended to by pathologists in their mode of treatment: and hence one common plan has been too generally laid down and pursued in ecstasy, catalepsy, lethargy, and even apoplexy, the general treatment being as much confounded as the diseases themselves.

Commonly speaking, copious bleedings and purgings have been chiefly trusted to in all of them: and as the present disease, in some cases, arises from plethora, or obstruction, or some irritation of the stomach, it is not to be wondered at that this process should sometimes succeed here also. But, if we have been correct in our pathology, if catalepsy be not only a nervous disease, but a disease of nervous debility, in which the sensorial power flows with enfeebled and clonic irregularity, and consequently with a necessary disturbance of the balance of the nervous system, it is perfectly clear that a reducent treatment, however serviceable in a few cases, cannot be laid down as the proper plan to be pursued in general, nor even in any case as an adviseable practice, further than it may be called for by the contingency of the exciting cause. Stimulants of most kinds will usually be found far more ser-

A reducent plan not always to be pursued.

* Tractat. de Peste. Lib. iv. Hist. 85.

viceable, particularly in the form of blisters to the head and heart, sinapisms and other rubefacients to the extremities, and injections to the rectum.

Gen. VIII. Spec. III. Carus Catalepsia. Catalepsy. Trance. Treatment.

Injection of foreign substances into the blood.

It is now well known that the simplest substances, as a solution of gum arabic, or merely warm water infused, to the amount of not more than an ounce or two, into the current of the blood by opening a vein, will not only excite the heart to a more violent action, but affect the stomach and intestinal canal with a like increased action by sympathy, producing sickness in the former, and looseness in the latter: and hence Dr. Regnaudot, in an ingenious inaugural dissertation, has thrown out a hint, well worthy of being followed up, that such a stimulus may probably succeed in rousing the system generally in the present and most of the preceding species.

Electricity. Voltaism.

Diffusible stimulants to be introduced into the stomach.

Electricity or voltaism, in the manner already recommended, may also be tried with a hope of success: and if it be possible to introduce any thing into the stomach by means of a syringe, brandy, ether, ammonia, camphor, or even phosphorus, in the form and dose already recommended, may be attempted in rotation. The body in the mean while should be kept warm, with a free influx of pure air, and general and persevering friction should often be had recourse to. A steady use of the metallic tonics should be chiefly confided in after the paroxysm is over.

Metallic tonics.

SPECIES IV.

CARUS LETHARGUS.

Lethargy.

MENTAL AND CORPOREAL TORPITUDE WITH DEEP QUIET SLEEP.

Gen. VIII. Spec. IV. Origin of the generic term.

Lethargy, from the Greek terms λήθη and ἀργὸς "oblivio pigra," is distinguished from all the preceding spe-

GEN. VIII. SPEC. IV. Casus Lethargus. Lethargy.

cies of the present genus, by the apparent ease and quietism of the entire system: the limbs retaining that gentle and placid flexion which they are wont to exhibit in natural sleep, and the eye-lids being consequently closed: by both which signs it is also distinguished from apoplexy.

Distinctive marks.

Occasional causes.

Lethargy is sometimes produced by congestion or effusion in the brain, by violent mental commotion, as that of fright or furious anger; by retrocedent gout, or repelled exanthems; but more generally by long-continued labour of body, or severe exertion of mind.

The common causes of sleep, therefore, whether natural or morbid, are in many cases causes of lethargy. The proximate cause, however, of idiopathic lethargy does not seem to have been sufficiently pointed out, and on this account it is that it has too frequently, like the preceding species, been confounded with apoplexy, and regarded as a mere modification of it.

Proximate cause not sufficiently pointed out by the writers.

Pathology.

We had occasion to take a glance at the general physiology of sleep, under the genus EPHIALTES, or nightmare, and observed that its proximate cause is to be sought for in a torpitude or exhaustion of sensorial power from the ordinary stimulants of the day. Now it is possible that the same effect may be produced by a defective supply of sensorial power as well as by its exhaustion; and, consequently, that the torpitude of sleep may ensue whenever such deficient action or energy exists, even where there is no exposure to its ordinary exciting causes.

Real difference between genuine lethargy and sound healthy sleep.

And this it is, as it appears to me, which constitutes the real difference between genuine lethargy and sound healthy sleep: in which sense the former becomes a strictly nervous affection dependent upon a weak and irregular action of the sensorial organ, accompanied with a diminished secretion of sensorial power, and this power, so diminished, irregularly distributed over its different departments or ramifications; being altogether withheld from the external senses and the voluntary organs, while the current to the involuntary organs is little interfered with, as in the case of common sleep. The faculties of the mind seem also,

in most cases, to partake of the torpitude of the external senses: though, as the whole is a disease of debility, and consequently of irregular action, we can readily account for a few singular cases that have been met with, in which the lethargy has been broken in upon by short returns of sensation, or even of speech, or by an irregular flow of ideas, which the patient is sometimes apt to mistake for sensations. And hence, lethargy has been observed under the following variteies:

Gen. VIII. Spec. IV. Carus Lethargus. Lethargy. Occasionally broken in upon by short returns of sensation or of speech. Explained.

α Absolutus. Genuine Lethargy.	Without intervals of sensation, waking or consciousness.
β Cataphora. Remissive Lethargy.	With short remissions or intervals of imperfect waking, sensation and speech.
γ Vigil. Imperfect Lethargy.	Perfect lethargy of body, but imperfect lethargy of mind: wandering ideas, and belief of wakefulness during sleep.

α C. Lethargus absolutus. Genuine lethargy.

The FIRST VARIETY has, in some instances, been considerably protracted. We have examples of its continuance for forty days*, and even for seven weeks†. In one instance it is said to have resulted from insolation, or exposure to the direct rays of the sun; and at length, with great singularity, to have yielded to a large flow of urine loaded with pus that fell to the bottom‡. In this case, the cause must have been congestion, and the inflammation have passed off by a secretion of pus, probably without any abscess whatever.

Surprising examples of its extent.

β C. Lethargus Cataphora. Remissive lethargy.

The SECOND VARIETY, or CATAPHORA, is the coma somnolentum of many writers: and is also a frequent accompaniment of many fevers and others diseases of great debility. It occurs at times, however, as an idiopathic affection; and I was some years ago acquainted with a very singular example that continued for five years. The

Singular example.

* Plott, Natural Hist. of Staffordshire.

† Bang, Collect. Soc. Med. Havn. II. 17.

‡ Morgagni, de Sed. et Caus. Morb. Ep. v. 13, 14. Albertino.

GEN. VIII. SPEC. IV. β C. Lethargus Cataphora. Remissive lethargy.

patient was a young lady of delicate constitution, in her eighteenth year at the time of the attack: her mind had been previously in a state of great anxiety: the remissions recurred irregularly twice or three times a week, and rarely exceeded an hour or two: during these periods she sighed, ate reluctantly what was offered to her, had occasional egestions, and instantly relapsed into sleep. Her recovery was sudden, for she seemed to awake as from a night's rest, by a more perfect termination of the paroxysm, not followed by a relapse.

Additional illustration with a less fortunate result.

A less fortunate case of the same kind is related by Mr. Brewster, in the Edinburgh Philosophical Transactions, and was connected with depressed animal spirits, and probably congestion or plethora. The patient was a female servant about the middle of life. The first paroxysm was preceded by a hemorrhage from the nose, and lasted three days: the next continued six weeks; during which she occasionally swallowed food and had alvine evacuations. She had two subsequent fits, neither of which lasted above a few days. Not long afterwards she hung herself*.

γ C. Lethargus vigil. Imperfect lethargy. The comá vigil of many pathologists.

The THIRD VARIETY, or IMPERFECT LETHARGY, is the TYPHOMANIA of the Greek writers; the COMA VIGIL of many later pathologists. It is a frequent sequel upon fevers, or other causes of great nervous debility, in circumstances in which the sensorial power has not recovered its regularity of current, or stability of balance: during which the patient uniformly assures his physician and his friends, morning after morning, that he has passed a restless and hurried night, without a moment's sleep, while the nurse has been a witness to his having been asleep the whole night long.

Mode of treatment: must vary according to the cause where we are able to ascertain it.

The mode of treatment must depend upon the nature of the cause, as far as we are able to ascertain it. If this have consisted in any suppressed discharge or eruption, we should endeavour to reproduce it by all possible means. If we have reason to suspect compression on the brain,

* Edin. Phil. Trans. 1817.

copious bleedings, purgatives, and other reducents are imperative. And if, as is more commonly the case, it be a strictly nervous affection, and depend on atony and a disturbed secretion or balance of the sensorial power, the warm nervine irritants, as musk, camphor, valerian, with blisters, sternutatories, and other stimulants, are the means we should have recourse to.

Gen. VIII. Spec. IV. γ C. Lethargus vigil. Imperfect lethargy. Treatment.

These different processes have been pursued in most ages, but unfortunately they have been pursued indiscriminately: and bleeding, purgatives, and ethers and other diffusible excitants have been employed on like occasions, or even at the same time. Forestus and Dr. Cheyne, who regarded lethargy as chiefly dependent upon plethora or congestion, seem uniformly to have adhered to a reducent plan; and Celsus who contemplated it as a nervous affection, equally confines himself to external and internal pungents, and advises pepper, euphorbium, castor, and vinegar, with the fumes of burning galbanum or hartshorn applied to the nostrils: as also shaving the head, fomenting it with a decoction of laurel leaves, or rue, and afterwards applying sinapisms or some other rubefacient epithem.

The treatment hitherto too indiscriminate.

Plan of Forestus compared with that of Celsus.

All these are consistent with themselves, how much soever the writers may differ in their view of the proximate cause. Yet neither line of conduct can be right as a general practice; and hence it is that other practitioners have occasionally intermixed the two, sometimes incongruously so; and consequently have done less mischief, as at other times they have done less good.

Both plans consistent with the explanation of the authors, but both cannot be right as a general principle. Hence some practitioners have incongruously mixed the two.

That genuine lethargy is, not unfrequently, a strictly nervous affection, and even closely connected with an irregular or debilitated state of the mind; and that a reducent plan is not always calculated to afford it radical relief, however it may give a temporary promise, must, I apprehend, be obvious to most practitioners who have paid a due attention to their own circle of cases; but the following example from Dr. Cooke, bearing a close resemblance in its termination to that already quoted from Mr. Brewster, is peculiarly in point, and ought not to be

Where the lethargy is a disease of nervous and especially of general debility, a reducent plan wrong.

GEN. VIII. SPEC. IV. Carus Lethargus. Lethargy. Treatment. Illustrated.

omitted on the present occasion: "A lady about twenty years of age, who had usually enjoyed very good health, was one morning found in a state of profound but quiet sleep, from which she could not be awakened, although the preceding evening she had gone to bed apparently quite well. Various means had been tried with a view of exciting her from this state, but in vain. Under these circumstances I recommended cupping in the neck; and after she had lost a few ounces of blood in this way, she opened her eyes perfectly recovered, and remained through the day, quite free from all symptoms of disorder. The next morning, and for several successive mornings, she was found in a similar state, from which she was recovered by the same remedy, no stimulating external applications producing any good effect. As she was considerably weakened by repeated depletions, it was determined that, on the next recurrence of the paroxysm, the case should be left to the effects of nature, as long as was consistent with safety. The experiment was tried; and at the end of about thirty hours she spontaneously awoke, apparently refreshed, and wholly unconscious of her protracted sleep. On the future returns of these paroxysms, which were frequent, the same plan was adopted, and she awoke after intervals of thirty-six, forty-eight, and, on one occasion, sixty-three hours, without seeming to have suffered from want of food, or otherwise. In the early part of the disease, various means were employed without the smallest advantage except that, while under the influence of mercury which produced a very severe salivation that lasted more than a month, she was free from the complaint. For a considerable length of time these paroxysms recurred: but at length they gradually left her; and soon afterwards she became deranged in mind, in which state I believe she still remains." *

Treatment where no symptoms leading to a peculiar cause.

When, therefore, there are no symptoms leading to a peculiar cause, it will be adviseable to bleed by cupping, once or twice, but not oftener, to open the bowels and

* Treatise on Nervous Diseases, Vol. i. p. 372.

keep them in a state of slight irritation; to employ blisters or other external stimulants occasionally, and to have recourse to a repeated use of the voltaic trough, sending the line of action from the occiput down the spine, and varying it to the extremities. In the mean time, if the patient can be made to swallow, we should try the effect of musk, or camphor, with free doses of the metallic tonics, of which the sulphate of zinc, in doses of a grain, three or four times a-day, offers the best prospect of success.

GEN. VIII. SPEC. IV. Carus Lethargus. Lethargy. Treatment.

SPECIES V.

CARUS APOPLEXIA.

Apoplexy.

MENTAL AND CORPOREAL TORPITUDE WITH PULSATION AND OPPRESSIVE, MOSTLY STERTOROUS, SLEEP.

THERE is a considerable difference of opinion among pathologists whether stertor is a necessary and invariable, or only an occasional sign of apoplexy. Sauvages, Linnéus, Vogel, Sagar, Forestus *, Kirkland †, Young, and by far the greater number of writers have arranged it as an essential symptom; and, hence, the present author was induced to view it in the same light when he published his volume of Nosology. He has since, however, met with one or two cases of atonic apoplexy, in which, although the disease proved fatal, the breathing was at no time noisy or stertorous, though uniformly laborious or oppressive: and he has hence been induced to modify the specific character in the manner it stands at the head of the present division: and thus to aproximate it to the opinion of Forestus, Cullen, and Portal, who do not regard stertor as a necessary index. Dr. Cullen is gene-

GEN. VIII. SPEC. V. Whether stertor be a necessary, or only occasional, symptom. The first generally supposed, and so described. The disease has occurred to the author without it: and hence the present modification is the definition: making an approach to the opinion of several modern authorities.

* Lib. x. Obs. 73.

† Comment. p. 16.

GEN. VIII. SPEC. V. Carus Apoplexia.

rally conceived to have omitted this peculiar mark, in consequence of his having included asphyxy and catalepsy under the genus APOPLEXIA, which have no pretensions to stertor. But, as we shall have to return to this subject when discussing the different forms or varieties under which apoplexy shows itself, I shall only further observe at present, that Dr. Cooke has, with great judgement steered a middle course in laying down his own definition, which characterizes apoplexy as "a disease in which the animal functions are suspended, while the vital and natural functions continue; respiration being generally laborious and frequently attended with stertor." *

Apoplexy. The subject to be resumed hereafter.

Judicious definition of Cooke.

Apoplexy strictly a disease of the nervous system:

Apoplexy is strictly a disease of the nervous system, dependent upon a suspension of the sensorial power in almost all its modifications, sentient, percipient, and motory, with the exception of a certain portion which still continues to be supplied to the involuntary organs; the faculties of the mind participating in the torpitude of the body. In these respects it bears a very near approach to the preceding species of CARUS; it chiefly differs in its being generally connected with an oppressed state of the vessels of the brain from overdistention or effusion: so generally, indeed, that apoplexy is, by almost all the writers on the subject, regarded rather as a disease of the sanguineous than of the nervous system; the morbid action of the latter being supposed to be entirely dependent on that of the former, and consequently only a secondary affection.

and hence makes a near approach to the preceding species of carus. Distinctive characters: leading to a general opinion that it is a disease of the sanguineous rather than of the nervous system.

This view of the subject, however, is by far too limited: for although in most cases the more prominent symptoms concur with the appearances on dissection in leading us to compression of the brain as the primary cause of the disease, yet we shall find presently that it has sometimes taken place where no such compression seems to have existed, whilst we have already had occasion to notice a variety of affections of the head attended with forcible and severe compression, as inflammation and dropsy of

This view of the subject too limited. Explained.

* On Nervous Diseases, Vol. I. p. 166.

the brain, that have run their entire course without any mark of apoplexy whatever: to which should be added that, while in most other diseases or lesions accompanied with compression of the brain, and a suspension of sentient and motory power as a consequence hereof, such suspension ceases almost the moment the compression is removed, when the nerves of feeling and motion, together with the faculties of the mind, resume their wonted activity, and evince no tendency to a relapse; in apoplexy, on the contrary, the result is always doubtful; for a palsy of some part or other is a frequent and permanent effect, or the mind suffers in some of its faculties, and a relapse is generally to be apprehended. So that though compression of the brain, and particularly from a morbid state of the sanguineous and respiratory functions, may be justly regarded as the ordinary efficient cause, there seems to be at the same time some peculiar debility or other diseased condition of the sensorial system to which apoplexy is primarily to be referred, and without which it might not take place; and which has not been sufficiently adverted to by practitioners. Though there can be no difficulty in our affirming that wherever such a morbid condition exists, compression, from whatever cause, will be sure to produce the disease.

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We may hence see why advancing age should prove a predisposing cause: and account for the statement of Morgagni, who tells that, of thirty cases of apoplectic patients that fell within the reach of his observation, seventeen were above the age of sixty, and only five below that of forty. Hippocrates, on a more general estimate, calculated that apoplexies are chiefly (μάλιστα) produced between the fortieth and sixtieth year *. This, indeed, is somewhat earlier than we should expect on the ground of advancing age; but when we take into consideration that it is the precise period in which the mind is most agitated and exhausted with the violent and contending passions of interest, and ambition, and worldly honours, and the blood

Hence obvious why advancing age should be a predisposing cause. Statement of Morgagni. Calculation of Hippocrates.

† Aph. Sect. VI. 57.

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most frequently determined to the head by this impulse of sudden and irresistible emotions, we shall, perhaps, readily accede to the Hippocratic aphorism as a general rule.

Hereditary influence whether a predisposing cause.

How far apoplexy is occasionally the result of an hereditary influence on the frame, it is not easy to ascertain. Forestus, Portal, and Wepffer refer to decided instances of such facts within their own knowledge; the first, indeed, relates the history of a father and his three sons, all of whom died in succession of this disease; but as the chronology drops with the second generation, it does not descend quite far enough for the purpose. There is great reason, however, for believing that an hereditary tendency does sometimes show itself; and, as this exists without external or manifest signs, it is probably seated in the sensorial system, and constitutes another of the morbid conditions of this system, to which we have referred above, as often giving effect to subordinate causes.

Heat a predisposing cause explained.

There is no difficulty in conceiving how heat may become a predisponent cause, since nothing tends more effectually to quicken the action of the heart, drive the blood forcibly into the ascending trunk of the aorta, and, consequently overload the vessels of the brain. But cold is said to be a predisponent cause as well, and one that operates quite as extensively, while the reason of this has not been at all times very clearly explained. Now as a hot temperature acts chiefly upon the sanguiferous system, extreme cold acts chiefly upon the sensorial, benumbs the feeling, weakens the muscular fibres, diminishes the sensorial secretion, and consequently induces, as we have already seen under one of the varieties of asphyxy, an unconquerable propensity to sleep. And hence again, in apoplexies produced by severe cold, the primary or predisponent cause is to be sought for in a debilitated state of the nervous system. The Greek physicians are perpetually alluding to this cause as one of great frequency, and the explanation now given, does not essentially vary from that offered by Galen*. If, indeed, the cold be ex-

Cold also a predisposing cause but operating very differently, and chiefly upon the sensorial system.

Cold supposed by the Greek physicians to be a cause of great frequency.

* De Loc. Aff. Lib. III. cap. vi.

quisitely intense, CARUS *Asphyxia* is more likely to be produced than CARUS *Apoplexia*; for we have already observed under the preceding species that the very same cause which, operating in a vehement degree, excites the former, operating less powerfully has often a tendency to excite the latter.

GEN. VIII. SPEC. V. Carus Apoplexia. Apoplexy. When exquisitely intense it produces asphyxy and only when in a less degree apoplexy.

The other predisponent causes, so far as they have been traced out, are more obvious to the senses, and, for the most part, more directly referable to the state of the sanguineous function; as plethora, corpulency, and grossness of habit, a short thick neck, and an inordinate indulgence in wines and heavy fermented liquors. Dr. Cheyne, indeed, believes the last to be so common a cause, as even to produce the disease when employed without any inordinate indulgence whatever: "the daily use", says he, "of wine or spirits will lead a man of a certain age and constitution to apoplexy, as certainly as habitual intoxication."* This may be true as here limited, but then the limitation must be attended to; in which case we are only told in other words, that wherever such a kind of sensorial debility exists as that which we have already adverted to, the result of age, or habit, or constitution, one man will be as readily led to apoplexy under a moderate use of wine, as another man destitute of such predisposition will be under a state of habitual intoxication. With this explanation, however, a moderate use of wine becomes only an accessory, and not a primary cause.

Other and more manifest predisposing causes. How far a daily use of wine in moderation may predispose.

How far there may be any other EFFICIENT or EXCITING causes of apoplexy than compression of some kind or other, it is difficult to determine, though various cases on record should induce us to suppose there are. Hydatids, tumours of almost every consistency, gelatinous, steatomatous and bony, pus, and polypous caruncles and indurations of the membranes, have, in various cases, been discovered on dissection, and are generally supposed to operate by compression, in the same manner as an accu-

The common efficient cause compression of the brain. How far there may be any other exciting cause, as determinable by dissections.

* Cheyne, p. 146.

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The ordinary morbid appearances mostly ineffective otherwise than as concomitants: though they may be sufficient where a strong predisposition exists.

Hence the apoplexy of infants from teething or ventricular acrimony.

As also apoplexy from other remote irritations.

Most of these morbid actions and appearances as common to other affections of the sensorial system as to apoplexy: and hence, wherever they become causes, the disease immediately produced must be determined by a pre-existing tendency to such disease rather than to any other.

mulation of blood or serum. But in many instances these appearances seem to have been too minute for any such effect; and, if causes of any kind, can only fairly be regarded as concomitants or allied powers—as local irritants, stimulating and exhausting the sensorium, and preparing it for attacks of apoplexy against the accession of some superinduced and occasional cause. Though where there exists already a strong predisposition to the disease from hereditary or any other affection, it is not improbable that such local irritants may alone be sufficient to perfect the complaint. And we may hence account for that form of apoplexy which is said to proceed from intestinal worms, or some other acrimony of the stomach, or from teething; and which, consequently, occurs at an early instead of at a late period of life, and has been specially denominated apoplexia *infantum*. Other organs, however, besides the teeth and the stomach, seem not unfrequently to have given occasion to apoplectic attacks from irritation, distention, or organic lesion. Thus, according to M. Portal, superinducing tumours and congestions have been found in the neck, in the breast, or in the abdomen; ossifications in the thoracic and ventral aorta, as well as in the arteries of the upper and lower extremities, in the superior vena cava, and in the right ventricle and valves of the heart, which has also indicated various other changes."*

Most of these morbid actions and appearances, however, are as common to various other affections of the sensorial system as to apoplexy. We have already noticed them in lethargy, convulsion, epilepsy, various species of cephalæa, and some forms of insanity: and hence, wherever they become causes at all, it is most probable that the disease they immediately produce, is regulated by the predisposition of the individual to one rather than to any other of the above sensorial affections, resulting from family taint, idiosyncrasy, habit, or period of life: and, consequently, that the same exciting or occasional cause,

* Portal, Ch. Resultats de l'Overture des Corps, p. 329.

which, in one person, would produce apoplexy, in a second, would form epilepsy, in a third, convulsion, and in a fourth, madness.

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It is highly singular that this view of the subject should scarcely ever have been attended to by physicians; and that, whilst all the writers have pretended to regard apoplexy as a disorder of the nervous system, none of them have suffered such ideas to enter fairly into their pathology, or in any way whatever into their practice: the nervous organ being supposed by all of them to be in a state of soundness at the time of the attack; and whatever mischief it suffers to be merely secondary and consequent upon a morbid state of the blood-vessels, or of some other cause that as suddenly and effectually interrupts the secretion or flow of the sensorial power, as retrocedent gout, mephitic vapours, or narcotic poisons.

Singular that this view of the subject should scarcely have been attended to: either in the description or practice of the disease.

Now all these accidental or effective causes of apoplexy are well known to be causes, also, of the other nervous affections we have just referred to. But if this be the case, how comes it that they should thus vary in their result, and that what in one person, and at one period of life, should produce apoplexy, should in another person, and in another period of life, produce lethargy, palsy, convulsions, or epilepsy? or that some of them should exist without producing any of these diseases or any other disease whatever? It is not, perhaps, possible for us to develope the precise condition of the sensorium that leads to any one of these effects, rather than to any other; but that there is such a condition forming a predisponent or remote cause of the specific disease that shows itself, must, I think, be allowed by every one who seriously considers the subject.

This point far investigated.

Nor is there, in effect, any other means of reconciling the discrepant and opposite opinions that have been held concerning the proximate cause of the disease. This we have stated to be, for the most part, compression, and especially sanguineous compression. Mr. John Hunter was so strenuously attached to this cause that he would allow of no other; M. Rochoux has followed his foot-

No other view than the present capable of reconciling various discrepant opinions concerning the proximate cause.

Opinion of John Hunter:

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steps*; and if a man died of apoplexy from atonic gout, and without effusion, the former distinguished it as *a disease similar to apoplexy*. He regarded apoplexy and palsy as one and the same disease, merely differing in degree: and he gives us his sentiments very forcibly, in the following words: "For many years," says he, "I have been particularly attentive to those who have been attacked with a paralytic stroke forming a hemiplegia. I have watched them while alive that I might have an opportunity to open them when dead: and in all I found an injury done to the brain in consequence of the *extravasation of blood*.—I must own I never saw one of them which had not an extravasation of blood in the brain, except in one who died of a gouty affection in the brain with symptoms *similar to apoplexy*."†

compression or determination to the brain in every instance producing extravasation.

Compression no cause whatever in the opinion of other authorities, and no such thing as determination to the head. Abercrombie.

In direct hostility to this hypothesis, many other writers of great eminence and experience have contended that compression is no cause whatever, and that an accumulation of blood in the head, as a prominent symptom in apoplexy, is a doctrine rather than a fact. Of this sentiment is Dr. Abercrombie, who, after examining the question with much ingenuity, brings himself to the following conclusion: "Upon all these grounds," says he, "I think we must admit that the doctrine of determination to the head is not supported by the principles of pathology, and does not accord with the phænomena of apoplexy."‡ M. Serres, however, a physician of considerable distinction in France, and who followed up this subject for many years by a careful examination of the bodies of persons who died of apoplexy and paralysis, both at the Hôtel Dieu, and the Hôpital de la Pitié, has carried his inroad upon the popular doctrine of the day still farther; for he has not only, in his own opinion, completely subverted it, but has endeavoured to establish another doctrine, of a very different character upon its

Experiments and hypothesis of Serres.

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* Dict. de Medicine, Tom. II. Paris, 1822.

† Treatise on Blood, &c. p. 213.

‡ Treatise on Apoplexy, &c. p. 19.

ruins*. To determine the question, he has gone through a long series of experiments upon the brains of dogs, pigeons, rabbits, and other animals, whose crania were trepanned, their lateral, or longitudinal sinuses laid open, and their brains lacerated and excavated in various ways, so as to be gorged with effused blood, yet in none of them did somnolency or any other apoplectic symptom take place. And he hence triumphantly concludes that extravasation of blood does not produce apoplexy, whether lodged between the cranium and the dura mater, or between the dura mater and the brain: whether the blood occupy the great interlobular scissure, and thus lies upon the corpus callosum; whether cavities be made in the fore, the back, or the middle part of the hemispheres, or run from the one into the other; or, lastly, whether piercing through the corpus callosum we reach and fill up the ventricles of the brain. "On whatever animal", says he, "we try these experiments, whether on birds, rabbits, or dogs, the result is the same, and hence apoplexy in man ought not to be ascribed to such effusions."

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How are these discrepancies to be reconciled? by what means are we to account for it, that pressure may be a cause, and may not be a cause? and that apoplexy is sometimes found with it, and sometimes without it? It is the peculiar state of the sensorium or nervous system at the time that makes all the difference—it is the morbid predisposition or debility, or whatever other deviation from perfect health it may labour under at the moment of the application of the exciting cause, that gives an effect which would not otherwise take place: and something of which, in many cases, often discovers itself by precursive signs for a considerable period before the apoplectic incursion. The facts stated by Mr. John Hunter no one can call in question: and we have as little right to question the experiments of M. Serres: the error consists in taking an unsound and a sound state of brain for like premises, and reasoning from the effects produced on the

Reconciliation of these opposite facts.

Experiments of M. Serres indecisive, however correctly stated, and why.

* Annuaire Medico-Chirurgicale, Avril, 1820.

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one, to those that are found to follow on the other. This, in truth, is an error too often committed; and hecatombs of quadrupeds and other animals in a condition of perfect health, are tortured in a thousand ways for the purpose of determining what they never could determine, though the trials were to be repeated to the end of time; I mean the effects of certain causes on a diseased state of body in man, from their influence on a sound state of body in brutes.

Hence views of Serres not supported by his examination of apoplectic patients after death.

M. Serres's actual examinations of apoplectic patients after death, however, though conducted also upon a large scale, do not seem to afford much countenance to his hypothesis, nor, in effect, to offer any thing out of the common way. In a considerable number of subjects there was serous effusion, sanguineous effusion, or both; sometimes in the circumvolutions of the brain, sometimes in the ventricles, sometimes in all these; and not unfrequently the vessels of the meninges appeared distended with blood, and the membranes themselves thickened. Such appearances seem to furnish something of a stumbling-block to M Serres's new doctrine, yet he readily gets over the difficulty by satisfying himself that, in all these cases, the effusion did not produce the apoplexy, but the apoplexy the effusion. In other dissections he found some material alterations in the structure of the brain, but without effusion; and, as the last class of individuals had evinced palsy rather than apoplexy, he is inclined to think that apoplexy, or that state of the disease in which the stupor is greater and more general, is occasioned by a morbid irritation of the *membranes* of the brain; and palsy, or that state in which the stupor is less, by a morbid change in its *substance*; in consequence of which he proposes to call the first *meningic*, and the second *cerebral* apoplexy. In this conclusion, however, there seems to be a striking mistake; and the very reverse is what we should have expected; for if there be one pathological principle more established than another, it is that stupor and dulness of pain appertain to the parenchymatous irritation or inflammation of an organ, and rousing, restless,

His subdivision of the disease at variance with the best established pathological facts.

and acute pain to its membranous irritation; a principle we have already explained at some length; and whence, indeed, the lancinating pain of pleuritis compared with pneumonitis, and of meningic or brain-fever, compared with acute dropsy of the head*.

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There is far more dependence to be placed upon the painful and unjustifiable series of experiments performed several years since by M. Rolando upon the brain of animals of almost all kinds; and which seem to show, as we have already observed, that animals which possess a perfect brain derive their sensific power and motific power not jointly from the cerebrum and cerebellum, but separately, the one affording the one power, and the other the other†. Stupor and apoplexy were in all these cases produced, not by a morbid irritation of the *membranes* of the brain, as conjectured by M. Serres, but by a morbid irritation of the *substance*, while irritation of the membrane took away neither the sensific nor the motific power.

The brain therefore may be rendered comatose by various causes: but we hold, after all, that the grand exciting cause of apoplexy, is compression; and this shows itself in various ways, which are well enumerated by Dr. Cheyne in the following passage: "I mention first," says he, "the remains of an excited state of the minute arteries of the brain and its membranes, this probably being the most important, as it is the most unvarying appearance; then the extravasation of blood, probably the consequence of the excited state of the vessels; the turgescence of the venous system; the enlargement of the ventricles, partial or general; and lastly, the serous effusion which is generally found in various parts of the brain, and which would seem to imply previous absorption of the brain."‡

Hence compression must still be allowed the grand exciting cause of apoplexy.

By what means it operates.

The concluding sentence in this passage appears to indi-

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* See Vol. II. Empresma Cephalitis, Cl. III. Ord. II. Gen. VII. Spec. I.

† Saggio sopra la vera Struttura del Cervello, &c. e sopra le Fanzioni de Sistema Nervosa. Sassari, 1809.

‡ Cheyne, p. 24.

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cate that this correct and discriminating pathologist was by no means inattentive to that extraordinary change which is not unfrequently produced in the structure and tenacity of the brain by various causes of excitement; and consists in a more or less extensive demolition of its substance, so that it is sometimes found to be pulpy or pasty, and at others the disorganization having proceeded further, to be as liquescent or diffluent as soup. Morgagni has collected various examples of these and other modes of disintegration; Dr. Baillie has occasionally adverted to them*; and Dr. Abercrombie has brought them into a still more prominent notice by an ingenious pathological explanation of their cause†. But, in France, the subject has been pursued with peculiar activity, since the publication of the first edition of the present work, and has excited an interest of no ordinary standard. To this change, M. Rochoux has given the name of *Ramollissement de Cerveau*, or Mollities Cerebri‡, and its nature and varieties have since been followed up, and systematically arranged with considerable nicety and precision, by M. Rostan‖, and M. Lallemand§, who have regarded it as an idiopathic affection, and, attempted a developement of its entire pathology and mode of treatment. Its actual cause is often doubtful; and still more doubtful is it whether it ever exists as a primary disease. That inflammation consequent on congestion or rupture of the blood-vessels of the brain is a frequent cause is clear, because the minute and colourless arteries of the part affected are often found striated or infiltrated, as the French call it, with red blood, and a clot of effused blood is traced in the centre. The inflammatory process hereby produced is sometimes violent and passes rapidly into the suppurative stage, accom-

Disorganization of the brain, sometimes pulpy or diffluent.

Mollities cerebri or Ramollissement de cerveau.

Regarded as idiopathic by some writers.

Actual cause doubtful.

Disease sometimes rapid and accompanied with inflammation.

* Morbid Anatomy Fascic. x. Pl. III. p. 213, and Pl. VIII. 227, 228.

† Edinb. Med. and Surg. Journ. vol. XIV. p. 265. Observations on Chronic Inflammation of the Brain.

‡ Recherches sur l'Apoplexie, 8vo. 1814.

‖ Recherches sur un Maladie encore peu connue qui a reçu le nom de Ramollissement de Cerveau. 8vo. 1820.

§ Recherches Anatomico-pathologiques sur l'Encephale et ses dependances. 1821.

panied with severe lancinating pains, and a feeling of constriction round the head, and even delirium; and, hence this condition is as common a result of cephalitis as of what we shall presently have occasion to call entonic apoplexy. The soft, pulpy disorganisation of the brain is in this case often intermixed with masses of pus, while the general hue of the diseased part is brown or reddish from a diffusion of the red particles of the blood that have been let loose; and as the extravasated blood becomes more or less decomposed and intermixed with the white or grey matter of the brain, and with effused serum, the colour is found to vary considerably through all the diversities of white, grey, yellow, rosy, amaranthine, deep red, brown, chocolate, and greenish. The grey substance of the brain, however, as less tenacious, is found more generally diffluent and more completely decomposed than the white.

Gen. VIII. Spec. V. Carus Apoplexia. Apoplexy.

More usually, however, the inflammation is far less violent and chronic; and the symptoms are those of an obtuse pain in the head, general oppression, occasional vertigo, with indistinctness of memory, and confusion of thought, the pulse evincing but little if any change from a state of health. But as these symptoms are common to various other diseases, their pathognomic value is small. There are two other signs, however, pointed out by the French monographists as more essentially distinctive, but which the present writer has never had an opportunity of noticing: these are a mouse-smell, or odour issuing from the body of the patient like that which is exhaled from the bodies of mice; and a movement of the lips on one side, accompanied with a rushing or whizzing sound like what is often exhibited by smokers in the act of smoking tobacco. For the production of these last symptoms, however, it is necessary that the disease should be accompanied with hemiplegia, so that one side of the mouth only is capable of motion.

Sometimes chronic, and inflammation doubtful.

Supposed pathognomic symptoms.

By far the greater number of these symptoms, however, indicate atony rather than entony of action; and hence, though inflammation is not unfrequently a proximate cause, debility whether consequent upon inflammation, or

In general atony indicated rather than entony.

Gen. VIII. Spec. V. Carus Apoplexia. Apoplexy.

any other morbid change, is, perhaps, a more common cause. Hence in our own country this organic mollescence has usually been regarded as a gangrene of the brain, and many of the French pathologists, and especially M. Recamier, incline to interpret it as a result of low atonic or malignant fevers, rather than of phlogotic action. With M. Rostan and M. Lallemand, however, it is ranked as a direct phlogosis, or plegmasia, not resulting from apoplexy, but necessarily conducting to it and producing it. Yet, as, according to their own showing, the leading symptoms are those of turgescence and oppression, with little increase of pulse or other excitement, it should seem to follow that they have in a considerable degree mistaken the cause for the effect, even where inflammation is co-existent.

In reality, though there is no difficulty in accounting for the extravasated blood or the vascular infiltration, or the depraved colours which are found in this state of the brain upon the principle of inflammation, there is a considerable difficulty in explaining upon the same principle the mollifaction of the diseased area: and it is upon this point that the pathology of the French writers seems chiefly to fail.

Morbid action explained. Hardness and softness of the brain accounted for.

The real mode of action, as it appears to the present writer, is the same as that which takes place in mollifaction of the bones, which we shall explain in a subsequent part of this system; but which, as well as its opposite, fragility of the bones, is always a disease of weakness local or general. Now we meet with a like deviation from a healthy tenacity of the brain in both these ways; for we find it sometimes too tough, and indeed almost horny *; as well in the grey as in the white compartments, occasionally indeed interspersed with masses of bony matter †; and at other times, as in the disease before us, too, soft and unresisting; and in both these cases also, if I mistake not, debility will be found the immediate cause even where inflammation has preceded. The firm and tenacious material which enters so largely into the sub-

* Morgagni, passim.

† See the accounts of Duverney, Giro, and Moreschi, especially in Gazette de Santé, Paris, Nov. 11, 1809.

stance of the brain, and particularly into the white part, is a secretion *sui generis*, and so long as the secernents and absorbents of this organ maintain a healthy action, and precisely counterbalance each other, this material will be duly supplied, and in a healthy state, as it is wanted, and duly removed to make way for a fresh recruit as it becomes worn out. But if the organ from any cause become weakened in its vascular powers, that weakness will extend to one or both the sets of vessels we are now considering, and the result will necessarily be the existence of brainy matter of a depraved and untempered tenacity. The secernents may not pour it forth in a sufficient abundance to supply the waste, or they may pour it forth in a dilute and unelaborated crasis, whence the general tissue must be soft and pulpy: or if the material be duly attempered as furnished by the secernents, the absorbents may be too debilitated to imbibe more than the thinner and attenuate parts of the texture when worn out by use, and leave the grosser behind; in which case the matter of the brain, at least in the regions thus affected, must necessarily be rendered morbidly tough or even horny. And hence both extremes may proceed from the same cause operating in a different way or upon different sets of vessels. And there can be no question that in proportion as the compages of the brain becomes looser and less resistible, effusions of serum and red-blood, ulceration. gangrene, and a total dissolution of the entire substance, must in many cases follow as a natural result, and in the order here stated. And hence in cancer of the brain the substance of the organ is always found in a soft or mollescent state. As a further proof that this peculiar change is for the most part a result of debility, it is admitted by both M. Rostan and M. Lallemand that it is by far most frequently met with in persons of advanced age; the former indeed asserts roundly that in the whole extent of his practice he has never met with more than one instance in which he was suspicious of it at or under the age of thirty, and as examination after death was not here allowed him, he does not regard even this case as of any moment.

GEN. VIII. SPEC. V. Carus Apoplexia. Apoplexy.

Both may proceed from the same cause.

Pulpy brain chiefly found in the weakness of advanced age

GEN. VIII. SPEC. V. Carus Apoplexia. Apoplexy.

Nature of the congestive fluid sometimes very singular, and has been ardent spirits. Illustrated.

It is singular that the congestive fluid, instead of proving a material elaborated by the animal frame itself, should sometimes consist of a foreign material recently received into the stomach. Dr. Cooke has given a case strikingly in proof of this, which I shall offer in his own words: "I am informed by Mr. Carlisle that, a few years ago, a man was brought dead into the Westminster Hospital, who had just drank a quart of gin for a wager. The evidences of death being quite conclusive, he was immediately examined; and within the lateral ventricles of the brain was found a considerable quantity of a limpid fluid distinctly impregnated with gin, both to the sense of smell and taste, and even to the test of inflammability. 'The liquid', says Mr. Carlisle, 'appeared to the senses of the examining students as strong as one third gin to two thirds water.'"*

Parallel instances of the transfer of exotic bodies or substances from organ to organ.

It is curious, and seems to baffle all explanation, to see how readily substances foreign to the blood, when they once enter into its current, are often carried from one organ to another, undiluted and undissolved, and deposited in an entire, or nearly an entire state, in a remote quarter. Absorbed pus affords us frequent examples of this, and morbid poisons, as they are called, still more frequent. It is hence that various medicines are enabled to act by a specific power; that mercury travels chiefly to the salivary glands, and perhaps several of the demulcents to the lungs.

These different sources of a compressed brain bespeak an opposite state of vascular action: and hence apoplexy has long been contemplated under two distinct forms: a sanguineous from excess of energy, and

On examining the different sources of a compressed brain, as we have just enumerated them, it will be obvious that they bespeak a very different, and, indeed, opposite state of vascular action in different cases; and that while some of them necessarily imply a vehement and entonic power, others as necessarily imply an infirm and atonic condition. The external symptoms, from the first, speak to the same effect; and hence, from an early period of time,—as early at least as that of La Riviere or Riverius†—apoplexy has been contemplated under two distinct

* On Nervous Diseases, Vol. i. p. 221. Schrader has a similar case, Observ. Anat. Med. Decad. iv. Amst. 1674. As also Wepfer, Observ. Medico-pract. p. 7. Scaph. 1722.

† Praxis Medica. 8vo. Lugd. 1670.

forms or varieties, which have commonly been denominated sanguineous, and pituitous or serous; as though the former proceeded from an overflow of blood highly elaborated by a vigorous and robust constitution, and rushing forward with great impetuosity; and the latter from thin dilute blood, or a leucophlegmatic habit, from the relaxed mouths of whose vessels a serous effusion is perpetually flowing forth. Morgagni has endeavoured to show, but without success, that this distinction was in existence among the Greek writers. It is a distinction, however, that runs, not only through his own works, but through those of Boerhaave, Sennert, Mead, Sauvages, and Cullen, and is acknowledged by most practitioners of the present day.

GEN. VIII. SPEC. V. Carus Apoplexia. Apoplexy. a serous from deficient energy.

The term pituitous or serous, however, has been objected to as not always expressing the actual state of the brain in atonic apoplexy; since no serum has been found at times in cases where the symptoms of debility have peculiarly led those pathologists to expect it who have employed the distinctive term; while the cavities and interstitial parts of the brain, have, on the contrary, been sometimes found as much loaded with blood, as in what they denominate sanguineous apoplexy. And hence, Forestus and a few other writers have been disposed to exchange the terms sanguineous and serous, for strong or perfect, and weak or imperfect apoplexy. How far a modification of this disease, strictly serous, may be said to exist, we shall examine presently; but that apoplexy is continually showing itself under the two forms of entonic, and atonic action, seems to be admitted by all. And, as the terms sanguineous and serous do not sufficiently express this change of condition in every instance, the author, in proceeding to treat of these two varieties, will, for the future, distinguish them as follows:

The term serous or pituitous objected to as not always expressive of the actual state of the brain in atonic cases: and hence by some writers the terms strong and weak apoplexy have been used in their stead, distinctly alluding to an entonic and atonic action, and laying a foundation for two varieties with these names.

α Entonica. Entonic apoplexy.	With a hard full pulse, flushed countenance, and stertorous breathing.
β Atonica. Atonic apoplexy.	With a feeble pulse, and pale countenance.

In ENTONIC APOPLEXY the fit is, for the most part,

GEN. VIII. SPEC. V. a C. Apoplexia entonica. Entonic apoplexy.

sudden and without warning; though a dull pain in the head occasionally precedes the attack, accompanied with a sense of weight or heaviness, somnolency and vertigo. The inspirations are deeper than natural; the face and eyes are red and turgid, and blood bursts from the nostrils. On the incursion of the paroxysm, the patient falls to the ground, and lies as in a heavy sleep from which he cannot be roused. The breathing is strikingly oppressive: though at first, perhaps, slow and regular, increasing in frequency, weakness, and irregularity with the progress of the fit, till at length it becomes, in many cases, intermitting and convulsive.

Approach of the disease: occasional precursive signs.

Incursion.

It is in this form of the disease that we chiefly meet with, and are almost always sure to find, a snoring or stertorous breathing; nor is this difficult to be accounted for, since the vessels of the trachea, and particularly those of the larynx and fauces, labouring under the same augmented action as those of the head, a larger portion of mucus is secreted by their excretories, than is carried off by the corresponding absorbents; in consequence of which it accumulates, and impedes the free flux and reflux of the air in respiration. And hence, stertor, though not a symptom essential to apoplexy, as a species, may be ranked as a pathognomic character of the particular form before us. And to the same effect Dr. Cooke and the most celebrated pathologists who have preceded him. "Boerhaave", says he, "measures the strength of the disease by the degree of stertor; and Portal agrees with him in opinion on this subject; observing that respiration in apoplexy is greatly impeded and the motions of the breast are very apparent. We hear a noise of snoring or stertor," he says, "which is great in proportion as the apoplexy is strong. In all the cases of strong apoplexy which I have seen, the respiration in the beginning of the paroxysm was laborious, slow, and stertorous; and in those which proved fatal, this symptom as far as I can recollect, remained, even when the breathing had became weak and irregular."*

Stertorous breathing almost always present in this form of the disease.

Accounted for.

Further illustrated.

* On Nervous Diseases, Vol. I. p. 171.

Gen. VIII. Spec. V. α C. Apoplexia entonica. Entonic apoplexy.

The author has witnessed it in the same manner continuing to the last gasp of life: the reason of which is, that, although in consequence of the debility which has now, perhaps, succeeded to morbid strength of action, there is less mucus secreted in the larynx and fauces than on the commencement of the disease, the absorbents of these organs, participating in the growing weakness, are only capable of carrying off the finer and more attenuate part of the fluid, and thus leave the more viscid in a state of accumulation. And it is for the same reason that from first to last there is often, also, an accumulation of frothy saliva or foam, which, as it becomes troublesome by its increase, is occasionally blown away from the lips with considerable force.

Stertor continues even in the weakness of the last gasp. Explained.

Hence too an accumulation of frothy saliva about the lips.

The skin is about the ordinary temperature, and covered with a copious perspiration, or a clammy sweat: the pulse is full and hard, the face flushed, the eyes blood-shot and prominent, and generally closed. The cornea is dull and glassy, and the pupil for the most part dilated. In a few cases, however, there is a tendency to either spastic or convulsive action, spreading sometimes over the limbs, but more generally confined to the muscles of the face: insomuch that, under the first, the teeth are firmly closed, and deglutition is impeded. And where this state exists the pupil is contracted, as in a synizesis, sometimes, indeed, almost to a point. This last feature has been rarely dwelt upon by pathologists, whether of ancient or modern times: but it has not escaped the observant eye of my accurate and learned friend Dr. Cooke: "In some instances", says he, "I have seen the pupil contracted almost to a point, and a physician of eminence of my acquaintance has likewise observed this appearance of the eyes in apoplexy: yet although all writers on the subject mention the dilated pupils, I do not find any one, Aretæus among the ancients, and Dr. Cheyne among the moderns excepted, who has noticed the contracted pupil in these cases." *

Further description.

Cornea dull, pupil dilated.

Sometimes spastic or convulsive action.

Pupil sometimes contracted, particularly observed by Cooke.

* On Nervous Diseases, Vol. i. p. 174.

Gen. VIII. Spec. V. α C. Apoplexia entonica. Entonic apoplexy.

The paroxysm varies in its duration, from eight to eight and forty hours, and sometimes exceeds this period. Dr. Cooke quotes from Forestus the case of a woman, who being seized with an apoplexy, which he calls *fortissima*, lay in the fit for three days, and afterwards recovered. We have already observed that where it does not prove fatal, it predisposes to a relapse, and often terminates in a lesion of some of the mental faculties, or in a paralysis more or less general; commonly, indeed, in a hemiplegia, which usually takes place on the opposite side of the body from that of the brain in which the congestion or effusion is found, on examination, to have taken place. "This", says Dr. Baillie, "would seem to show that the right side of the body derives its nervous influence from the left side of the brain, and the left side of the body its nervous influence from the right side of the brain. It is rarely indeed, if ever, that some of the turgid vessels of the brain are not ruptured in this form of the disease, and consequently produce an effusion of blood into some part of the organ of the brain." And, according to the same distinguished writer, the part where the rupture most commonly takes place is its medullary substance near the lateral ventricles, some portion of the extravasated fluid often escaping into these cavities *.

Duration of the paroxysm.

Has extended to three days with recovery.

Sequel of the disease.

When hemiplegia, usually on the opposite side of the body from that of the brain when there is effused blood.

β C. Apoplexia atonica. Atonic apoplexy.

Atonic apoplexy is the disease of a constitution infirm by nature or enfeebled by age, intemperance, or over-exertion of body or mind. It has more of a purely nervous character, as we have already observed, than the preceding variety, and is more a result of vascular debility than of vascular surcharge, and consequently where effusion of blood is found, as it often is, in the present form, the vessels have been ruptured, not from habitual distention or vigorous plethora, but from accidental, often, indeed, slight causes, that have produced a sudden excitement and determination to the head beyond what the vascular walls are capable of sustaining. Hence, a sudden fit of coughing or vomiting, a sudden fright, or fit of joy,

A result of vascular debility rather than of vascular surcharge:

and hence here also the vessels of the brain have been found ruptured, from their own weakness.

* Morbid Anat. p. 227.

an immoderate fit of laughter *, the jar occasioned by a stumble in walking, or a severe jolt in riding, have brought on the present form of apoplexy, and with so much the more danger as the system possesses less of a remedial or rallying power in itself.

Gen. VIII. Spec. V. β C. Apoplexia atonica. Atonic apoplexy.

In most of the cases the effusion detected after death has, therefore, been as truly sanguineous as in entonic apoplexy; and hence a valid objection to the use of the term sanguineous as descriptive of the entonic form alone. "It is", says M. Portal, "an error to believe that the apoplexy to which old men are so much subject is not sanguineous." Daubenton and Le Roy, Members of the Institute, died of this precise kind of the disease at an advanced age: and Zulianus describes a case marked by a pale countenance, and a pulse so weak as scarcely to be felt, which, on examination after death, was found to be an *apoplexia verè sanguinea:* and another in which, after all the symptoms of what is ordinarily called serous apoplexy had shown themselves, extravasated blood was discovered in the brain without any effusion of serum, or the smallest moisture in the ventricles †.

And hence an objection to the term sanguineous apoplexy as descriptive of the entonic form alone. Illustrated.

It is nevertheless true that atonic apoplexy is often found with an effusion of serum instead of an effusion of blood, and apparently produced by such serous effusion; and hence, notwithstanding the objections of Dr. Abercrombie, and, in the latter years of his practice, of M. Portal, to serous effusion as a cause at all, the experience and reasoning of Boerhaave and Hoffman, and Mead, and Sauvages, and Cullen, must not be abruptly relinquished without far graver proofs than have hitherto been offered: for if it be a question, as Stoll has made it, whether effused serum, when discovered in the brain of those who have died of apoplexy, be a cause of the disease or an effect ‡, we may apply the same question to effusion of blood. It is possible, indeed, for effused serum to become occasionally a cause even of entonic apoplexy, or that

Yet this form often found with an effusion of serum, and apparently produced by it; as conjectured by very high authorities.

Effused serum may become,

* Aretæus de Sign. et Caus. Diut. Morb. Lib. I. Cap. 7.

† See also Burser. De Apoplex. p. 82. Cooke, ut sup. ‡ Prælect. p. 367.

GEN. VIII. SPEC. V. β C. Apoplexia atonica.

Atonic apoplexy.

though rarely, a cause of entonic apoplexy.

Explained.

Serous apoplexy as commonly understood the result of a debilitated constitution:

which, from its symptoms is ordinarily denominated sanguineous apoplexy; for it is possible for the exhalants of the brain to participate so largely in the high vascular excitement by which this form of the disease is characterized, as to secrete an undue proportion of effused fluid into any of its cavities, and thus become as direct a cause of apoplexy as extravasated blood.

This, however, is not what is generally understood by the term serous apoplexy as distinguished from sanguineous, and, indeed, ought only to be regarded as an effect of sanguineous distention. Serous apoplexy, properly so called, is strictly the result of a debilitated constitution, and especially of debility existing in the excernent vessels of the brain, whether exhalants or absorbents. I say absorbents, because although lymphatics have not yet been discovered in this organ, there must be vessels of some kind or other to answer their purpose, and the extremities of the veins have been supposed thus to act; a supposition which has derived countenance from various experiments of M. Magendie, to which we shall have to advert in the Proem to the sixth class, and which may at least stand as an hypothesis till the proper system of vessels is detected.

and may take place from three causes.

A serous effusion, under these circumstances, may take place from three causes. The mouths of the exhalants may be relaxed, and consequently let loose a larger portion of fluid than they are accustomed to do in a state of health, and a larger portion than can be carried off by the absorbents. Or the extremities of the absorbents may be torpid and inactive, and not imbibe the fluid that is thus thrown forth, and the balance may be disturbed in this as well as in the preceding way. Or the blood itself, may be of too watery a crasis, and too large an effusion take place from this cause; whence, indeed, we frequently meet with apoplexy as the result of general dropsy.

Hence atonic apoplexy commonly more slow in its progress than entonic.

Precursive signs.

Hence, atonic apoplexy rarely makes its attack altogether so incontinently as entonic; and is commonly preceded by a few warning symptoms. These are often, however, nothing more than the ordinary precursors of other nervous affections, as vertigo, cephalæa, imaginary sounds,

a faltering in the speech, a failure in the memory or some other mental faculty, and at length a sense of drowsiness, and a tendency to clonic spasms. On the attack of the paroxsym the patient is as completely prostrated as in the entonic variety, but the symptoms are less violent, though not on this account less alarming, in consequence of the greater debility of the system. The countenance is here pale or sallow, instead of being flushed, but at the same time full and bloated; the pulse is weak and yielding, sometimes, indeed, not easy to be felt; and the breathing though always heavy and laborious, not always, as we have already observed, noisy or stertorous. If spasms occur, they are uniformly of the convulsive or clonic kind. The duration of the fit varies as in the preceding variety, and if the patient recover, he is more liable to a relapse, and more in danger of hemiplegia or some other form of paralysis than in the stronger modification of the disease.

Gen. VIII. Spec. V. β C. Apoplexia atonica. Atonic apoplexy. Incursion.

Duration of the fit varies.

From these remarks on the two varieties of apoplexy, we may readily see why this complaint, and its ordinary associate or sequel, palsy, should be about equally common to the poor and to the rich: for frequent exposure to cold and wet, severe and long protracted exercise, and a diet below what is called for, will often be found to produce the same debilitating effects as ease, indolence, luxury, and indulgence at too sumptuous a table. And hence, contrary to what many would expect, Sir Gilbert Blane has observed from accurate tables kept with minute attention and derived from a practice of ten years in St. Thomas's Hospital, and his private consultations, that "there is a considerably greater proportion of apoplexies and palsies among the former than among the latter": or, in other words, that these disorders bear a larger proportion to other diseases among the lower classes than among those in high life. "Some cases of hemiplegia," says he, "occur in full habits; some in spare and exhausted habits. The former, being most incident to the luxurious and indolent, most frequently occur in private practice, and among the upper ranks of life. The latter occur more among the laborious

Disease under one form or other equally common to the poor and the rich.

Illustrated from Blane's tables.

GEN. VIII. SPEC. V. β C. Apoplexia atonica.

classes, and among such of the rich as are addicted to exhausting pleasures."*

Atonic apoplexy. Prognostic. Atonic apoplexy more dangerous than entonic, and why.

In forming our prognostic, a special regard must be had to the peculiar character of the disease. Generally speaking, atonic apoplexy is more dangerous than entonic, for we have here a more barren field to work upon, and nature herself, or the instinctive power of the living frame, has less ability to assist us.

In other respects the danger parallel with the violence of the symptoms.

As to the rest in either modification, the degree of danger will be generally measured by the violence of the symptoms.

Favourable signs.

Where, under the first variety, the breathing is not much disturbed, the pupil is relaxed, and there is no appearance of spastic action; where the perspiration is easy, the skin warm rather than hot, the bowels are readily kept in a due state of evacuation, and more especially where there is any spontaneous hemorrhage, as from the nose or hemorrhoidal vessels, and of sufficient abundance, we may fairly venture to augur favourably.

Unfavourable.

But where the symptoms are directly opposed to these; where the stertor is deep and very loud†, and particularly where it is accompanied with much foaming at the mouth‡; where the teeth are firmly clenched, or a spasm has fixed rigidly on the muscles of deglutition, and the pupil, instead of being dilated, is contracted to a point, we have little reason to expect a favourable termination.

A contracted pupil a sign of great danger and why.

The great hazard resulting from this tendency to spastic action, and particularly as evidenced in a strongly contracted pupil, is thus forcibly pointed out by Dr. Cooke. "Among the dangerous signs in apoplexy, many authors mention a dilated state of the pupil of the eye: but the contracted pupil, which I consider to be a still more dangerous appearance, has been scarcely noticed. I am of opinion that this ought to be reckoned among the very worst symptoms of the disease. I never knew a person recover from apoplexy when the pupil was greatly contracted. My opinion on this subject is confirmed by that of Sir Gilbert Blane and Dr. Temple§."

* Trans. Medico-Chir. Soc. Vol. IV. p. 124.
† Dolæus, p. 144.
‡ Burser. p. 97.
§ Burser. p. 280.

Dr. Cheyne, in like manner, regards convulsions as a source of great danger: while M. Portal, on the contrary, thinks they sometimes announce a diminution of the morbid cause. The latter reasons from the fact that when, in living animals, a slight pressure has been made on the exposed brain, convulsions have taken place; while, if the pressure be increased in power, general stupor with stertor and difficult respiration have followed instead of convulsions; an ingenious conclusion but not exactly applicable, since in the one case the brain is in a morbid and in the other in a sound state; whence the premises on which the reasoning is founded are not parallel.

GEN. VIII. SPEC. V. β C. Apoplexia atonica. Atonic apoplexy. Convulsions whether dangerous.

In the treatment of apoplexy, if we be timely consulted during the existence of the precursive signs which have been noticed as occasionally taking place, we shall often find it in our power completely to ward off a paroxysm by bleeding, purgatives, perfect quiet, and, in the entonic variety, a reducent regimen. Where, however, the pulse, and other symptoms give proof of weak vascular action, and nervous debility, the depleting plan should be pursued with caution, and it will be better to employ cupping-glasses than venesection, and, in some instances, to limit ourselves to purgatives alone. Yet, whatever be the degree of general debility, if the proofs of compression or distention be clear, as those of drowsiness, vertigo, and a dull pain in the head, it will be as necessary to have recourse to bleeding either locally or generally, as in entonic apoplexy; for such symptoms will assuredly lead to a fit, unless timely counteracted and subdued.

Medical treatment. Importance of a timely attention to the precursive signs.

Bleeding when to be pursued with caution.

When absolutely necessary even in atonic apoplexy.

"In the actual paroxysm of apoplexy," says Dr. Cooke, and I quote his words because it is impossible to exchange them for better, "the patient should, if possible, be immediately carried into a spacious apartment, into which cool air may be freely admitted. He should be placed in a posture which the least favours determination of blood to the head: all ligatures, especially those about the neck, should be speedily removed, and the legs and feet should be placed in warm water, or rubbed with stimulating applications. These means may be employed in all cases

General directions.

GEN. VIII. SPEC. V. Carus Apoplexia. Apoplexy. Treatment.

of apoplexy"*: and are consequently equally applicable to both the forms under which we have contemplated the disease. The collateral means to be had recourse to require discrimination, and it will be most convenient to consider them in relation to the actual form under which the apoplexy presents itself.

Particular treatment of entonic apoplexy.

Copious and repeated bleeding.

In ENTONIC APOPLEXY, copious and repeated bleeding seems, primâ facie, to offer the most rapid and effectual remedy we can have recourse to: yet the opinions of the best practitioners, as well in ancient as in modern times, have been strangely at variance upon this subject. Hippocrates, who regarded apoplexy as chiefly dependent upon a weak and pituitous habit, discountenanced the use of the lancet, as adding to the general debility: and even where it is accompanied with symptoms of strong vascular action, he discountenanced it equally, from an idea that the case was utterly hopeless when it assumed this form, and that to have recourse to bleeding would only bring a reproach upon the art of medicine. The authority of Hippocrates has had too much influence with physicians in all ages, and has extended its baneful effects to recent times, and in some instances even to our own day. Hence Forestus tells us, that in strong or entonic apoplexy, no courageous plan ought to be attempted, no venesection, no pills: we may, indeed, to please the by-standers, have recourse to the remedia leviora of frictions, and injections, and ligatures round the arms and thighs: "and where", says he, "we have not found these succeed—in rationem sacerdotibus commiserimus."

Timid practice of Hippocrates.

Mischievous influence on later physicians: as Forestus:

Heberden:

In our own country, the same timid feeling has been particularly manifested by Dr. Heberden and Dr. Fothergill, but on grounds somewhat different. These excellent pathologists have chiefly regarded apoplexy as a disease of nervous rather than of general debility, and have been fearful of adding to this debility by abstracting blood, and hereby of almost ensuring hemiplegia, or some other form of paralysis. Hence Dr. Heberden speaks with great

* Burser. p. 288.

hesitation concerning the practice rather than with an absolute and general condemnation of it: he observes, which is true enough, that many persons have been injured by large and repeated bleedings, and then lays down his rule, not to bleed either in an attack of apoplexy or palsy, if there would have been just objections to taking away blood before the incursion of either*. Gen. VIII. Spec. V. Carus Apoplexia. Apoplexy. Treatment.

Dr. Fothergill, however, expresses himself still more decidedly against bleeding than Dr. Heberden. He suspects that the weakness it occasions checks the natural effort to produce absorption; and that even the hard and full and irregular pulse, which seems imperatively to call for a very free use of the lancet, "is often an insufficient guide"; since "it may be that struggle which arises from an exertion of the *vires vitæ* to restore health." And hence, he adds in another place, "I am of opinion that bleeding in apoplexy is, for the most part, injurious, and that we should probably render the most effectual aid by endeavouring, in all cases, to procure a plentiful discharge from the bowels: as by these revulsions, the head is, perhaps, much more effectually relieved from plenitude, and that without weakening or interrupting any other effort of nature to relieve herself than by venesection."† Fothergill.

It is singular that in drawing such conclusions from the instinctive efforts or remedial power of nature, where a cure has been effected spontaneously, these distinguished writers have not felt more deeply impressed by the salutary efforts of spontaneous and copious hemorrhages, as from the nose, the lungs, and the hemorrhoidal vessels, which have never perhaps poured forth blood freely without operating a cure; and that they have not endeavoured to follow these footsteps, as far as they might have done, by substituting an artificial discharge of blood where a natural discharge has not taken place. Salutary effects of spontaneous hemorrhages.

Other physicians, however, both in ancient and modern times, have not been equally insensible to this important fact. Galen, though he always hesitated in departing from Bolder practice of other writers ancient and modern: Galen,

* Medical Transactions, I. p. 472. † Works, Vol. III. p. 208.

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the practice of Hippocrates, ventured to deviate from him upon the point before us. Aretæus, Paulus of Ægina, and Cœlius Aurelianus carried the remedy of bleeding to a still further extent, and Celsus regarded it as the only mean of effecting a cure*.

Aretæus, Paulus Ægineta.

Arabian practice.

"The Arabians adopted the practice of the ancients, as far as relates to the employment of blood-letting in the strong apoplexy, and by far the greater number of modern physicians have, in this respect, followed their example. In support of this practice we might adduce the opinion of all who have written on the disease: we might quote from the works of Sydenham, Wepffer, Boerhaave, Van Swieten, Morgagni, Baglivi, Sauvages, Tissot, Mead, Freind, Pitcairn, Hoffman, Cullen, Portal, Cheyne, and many other eminent modern writers."† As this paragraph is quoted from Dr. Cooke, it is almost superfluous to add his own name to the list of those who strenuously recommend blood-letting.

Boerhaave, Morgagni, Hoffman, Cullen, Portal, Cheyne, Cooke.

On which side blood may be drawn most advantageously. Mostly recommended from the sound side. By Baglivi from the diseased side.

A question has been made as to the side from which it may be most advantageous to take blood. Aretæus drew it from the sound side, wherever this could be distinguished. Valsalva and Morgagni recommend the same; as does also Cullen, observing that "dissections show that congestions producing apoplexy are always on the side not affected."‡ Baglivi recommends bleeding from the diseased side, except where blood is abstracted locally. The question appears to be of no great importance: the grand object in general bleeding is to diminish the quantity and momentum of the circulating fluid, to enable the ruptured vessels to contract with greater facility, and to afford time for an absorption of whatever may have been effused.

Local bleeding to accompany general. To what extent.

In entonic apoplexy, general and local bleeding should go hand in hand; and the quantity drawn should in every instance depend upon the urgency of the symptoms. Dr. Cheyne advises us to begin with abstracting two pounds,

* De Medicin. Lib. III. cap. XXVII.
† Cooke, ut suprà, 292.
‡ Pract. of Phys. Vol. III. p. 184.

and tells us that it will often require a loss of six or eight pounds before the disease will give way.

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Dr. Cullen, and many other writers, as Morgagni, Valsalva, and Portal, have recommended that the opening should be made in the temporal artery or the jugular veins. "In all cases of a full habit," says Dr. Cullen, "and where the disease has been preceded by marks of a plethoric state, blood-letting is to be immediately employed, and very largely. In my opinion it will be most effectual when the blood is taken from the jugular vein; but if that cannot be done, it may be taken from the arm. The opening of the temporal artery, when a large branch can be opened so as suddenly to pour out a considerable quantity of blood, may also be an effectual remedy; but, in execution, it is more uncertain, and may be inconvenient. It may in some measure be supplied by cupping and scarifying on the temples or hind-head. This, indeed, should seldom be omitted, and these scarifications are always preferable to the application of leeches". *

Temporal artery.

Jugular vein.

In bleeding from the temporal artery we may safely let the stream flow as long as it will, for in common it will cease before we have obtained enough, and all tight ligatures about the head, or indeed any other part of the body, should be avoided as much as possible. For the same reason Heister advises that, on opening the jugular vein, no ligature should be made use of, as the smallest pressure on the part may do harm by interrupting the circulation of the blood on the external veins of the neck.

Opening of the superior longitudinal sinus, proposed by Dejean: but discommended by Portal and Tenon.

M. Dejean, of Caen, proposed, not long ago, to the Academy of Sciences, to open the superior longitudinal sinus after raising the bone which covers it, and asserted that he had employed this mode with great success on strangled dogs. M. Portal, and M. Tenon, however, who were appointed commissioners to report on M. Dejean's memoir, agreed that bleeding from the jugular vein is preferable to that from the sinus, as producing the

* Pract. of Phys. Vol. III. p. 182.

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same effect more speedily, and with more facility of restraint when a sufficiency of blood has been taken away.

General result.

What seems to be the fair result the author will give in the words of Dr. Cooke. "General opinion, then, as well as reasoning, appears to be very much in favour of free and repeated evacuations of blood, both general and topical, in the strong apoplexy; and I am persuaded that greater advantage may be reasonably expected from this than from any other practice: yet I am very much inclined to think that it may be, and actually sometimes has been, carried too far. I have seen several cases, and heard of many others, in which very large quantities of blood have been drawn without the smallest perceptible advantage, and with an evident and considerable diminution of the strength of the patient."*

Purgatives.

The next important means to be pursued is that of exciting the bowels by active purgatives, and thus endeavouring to lessen the pressure on the brain by revulsion. The particular purgative is of no importance: whatever will operate most speedily and most effectively is what should be preferred in the first instance: and hence a combination of calomel and extract of jalap will be found among the best: though a free action may afterwards be more conveniently maintained by colocynth or sulphate of magnesia. Dolæus employed calomel so as to excite salivation, from an opinion that all evacuations are useful; and he gives an account of several cures he was hereby enabled to effect, and particularly relates the case of a woman who was in this manner considerably relieved, and died on the cessation of the ptyalism†.

Emetics, in entonic apoplexy, of a doubtful character:

The collateral remedies are of less importance though some of them may add to the general effect. Emetics are of a very doubtful character in the form of the disease before us, though often highly useful in atonic apoplexy. They have been given upon the principle of their producing a sudden prostration of strength, and faintness: but this is a result of nausea rather than of vomit-

* Ut suprà, p. 311. † Dolæus, p. 149.

ing: and the languor hereby occasioned is not exactly of the kind we stand in need of; regard being had to the disease as a nervous affection, and the danger of inducing hemiplegia. Full vomiting may, indeed, determine from the head to the surface of the body, but we cannot answer that the straining will not renew the extravasation, or even rupture a vessel where no rupture has existed. It is true the same plan has at times been employed in hæmoptysis, apparently with success; but it has in other instances been so decidedly productive of mischief, as to urge those who have made choice of it to abandon it abruptly, with a determination never to return to it in any other case, as we have already observed when treating of hæmoptysis under Class III. Order IV. in the preceding volume. The only instance in which it may be prudent to prescribe an emetic, is where the disease has evidently proceeded from a surcharged stomach.

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and why doubtful.

Blisters and sinapisms promise but little in this form of the disease: they tease and irritate to no purpose when applied to the extremities, and are still more injurious when they are made to cover the scalp; for they effectually prevent the use of epithems of cold water, or vinegar, or pounded ice, which afford a rational chance of producing benefit.

Blisters and sinapisms.

Cordials were in high reputation among the Greek practitioners, from a belief that apoplexy is in almost every case the result of a debilitated and pituitous habit: and the custom has too generally descended to the present day, even where the ground on which it was founded has been relinquished. Stimulants and cordials of all kinds should be sedulously abstained from: and the neutral salts with small doses of the antimonial powder, or any other cutaneous relaxant be employed in their stead: cooling dilute drinks should be freely recommended; and if we should hereby be enabled to excite a gentle moisture on the skin, it may prove of incalculable advantage.

Cordials and all stimulants mischievous.

The curative process under our SECOND VARIETY of the disease, or ATONIC APOPLEXY, must vary in many

Particular treatment of atonic apoplexy.

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points from the preceding. It is here, if at any time, we should pause, before we employ bleeding. Yet as dissections show us that even here also compression, and that too from an efflux of blood, is very general, and either from blood or serum, almost constant,—whatever be the degree of constitutional debility, I can hardly conceive of any case in which we should be justified in withholding the lancet or the use of cupping-glasses. The argument stands precisely upon the ground of the expediency of bleeding in typhus accompanied with congestion: it is in itself an evil; but it is only employed as a less evil to fight against a greater. With it we may succeed: without it, in either instance, the case is often hopeless.

Bleeding demands a pause: but may in some cases be imperatively called for. Illustrated.

Local bleeding mostly to be preferred to general.

Generally speaking, however, local bleeding will here be preferable to that of the lancet; but cupping should always be preferred to leeches whose operation is far too slow for the urgency of the occasion. The last, however, are recommended by Burserius, and Forestus quotes an instance in which they succeeded by a formidable application over the entire body*. Aretæus, after abstracting blood by cupping-glasses, recommends also the use of dry-cupping between the shoulders, and the recommendation is highly ingenious and worth attending to†.

Purgatives may be used with less doubt.

Purgatives, though less violent than in entonic apoplexy, should in like manner be had recourse to: and as we have less danger to apprehend from the use of emetics, they may be given more freely. They are strongly recommended by Sauvages, and were regarded by Grubelius almost as a specific. They have the triple advantage of freeing the stomach from morbid acrimony, rousing the system generally, and determining from the head to the surface of the body.

As may external and internal stimulants.

Here also we may use both external and internal stimulants in many cases with considerable success. Of the former, volatile alkali, rubefacients, and blisters may be made choice of in succession, and applied alternately to

* Lib. x. Obs. 76. † De Cur. Morb. Acut. i. 4.

different parts of the body. Of the latter we should chiefly confine ourselves to the warmer verticillate plants, as lavender, marjoram, and peppermint, or the warmer siliquose, as horse-radish and mustard, or the different forms of ammonia; yet even of these we are debarred by Dr. Cullen, at least in that particular modification of atonic apoplexy, which we have described under the name of serous, though he does not enter into a consideration of any other.

Treatment of apoplexy from excess of drinking, or of narcotics.

In that peculiar kind of apoplexy which is sometimes produced by taking immoderate doses of spirits or some narcotic, and especially opium, in which we meet with an almost instantaneous exhaustion of the nervous power, or an instantaneous stop put to its secretion or flow, making a near approach to asphyxy, though with a heavy drowsiness and stertorous breathing, the patient should first have his stomach thoroughly emptied by an emetic of sulphate of copper; he should be generally stimulated by blisters, and kept in a state of perpetual motion by walking or other exercise, so as to prevent sleep till the narcotic effect is over. An interesting case of this kind will be found related by Dr. Marcet in the Medico-Chirurgical Transactions*.

The interval of great importance, and demands minute attention.

After all it should not be forgotten that apoplexy is in most, perhaps in all cases, not secondarily alone, but primarily a nervous affection, and dependent upon a predisposition to this disorder in the sensorium itself, if not upon a morbid condition of it: and that hence the patient, though we should recover him from the actual fit, will be subject to a recurrence of it. In this view the interval becomes a period of great importance, and should be as much submitted to a course of remedial treatment as the paroxysm itself.

Intermediate treatment of entonic apoplexy:

After entonic apoplexy, the patient should habitually accustom himself to a plain diet, regular exercise, early hours of meals and retirement, and uniform tranquillity of mind: and the state of his bowels should particularly

* Vol. I. p. 77.

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of atonic apoplexy.

claim his attention. After the atonic variety the same general plan may be followed with a like good effect, but the diet may be upon a more liberal allowance; and a course of tonic medicines should form a part of the remedial system. If it were true, as suspected by Dr. Cullen, that all bitters contain in the bitter principle itself a narcotic and mischievous power, these ought to be carefully abstained from, but we have already observed that this does not seem to be the fact. And hence much of the treatment laid down under LIMOSIS Dyspepsia* may be pursued here: together with the use of the waters of Bath, Buxton, and Leamington.

SPECIES VI.

CARUS PARALYSIS.

Palsy.

CORPOREAL TORPITUDE AND MUSCULAR IMMOBILITY MORE OR LESS GENERAL, BUT WITHOUT SOMNOLENCY.

GEN. VIII. SPEC. VI. Relation to apoplexy. Still more strictly a nervous affection. Sometimes exists principally in the motory fibres: sometimes in the motory and sentient: and sometimes influences several of the mental faculties.

PALSY is a disease which makes a near approach to apoplexy in its general nature and symptoms, and is very frequently a result of it. It is, however, still more strictly a nervous affection, and less connected with a morbid state of the sanguiferous or the respiratory organs. In examining it more in detail, we shall find that sometimes the motory fibres alone are affected in any considerable degree, while the sentient are only rendered a little more obtuse; sometimes both kinds are equally torpid, and sometimes several of the faculties of the mind participate in the debility, though they are never so completely lost as in apoplexy.

* Vol. I. p. 164.

The Greek writers contemplated the two diseases under the same view, considering them as closely related to each other, or, in other words, as species of the same genus. "The ancients", says Dr. Cooke, who has accurately gone over the entire ground and taken nothing upon trust, "very generally considered apoplexy and palsy as diseases of the same nature, but different in degree; apoplexy being an universal palsy, and palsy a partial apoplexy. Aretæus says, apoplexy, paraplegia, paresis, and paralysis, are all of the same kind; consisting in a loss of sensation, of mind, and of motion. Apoplexy is a palsy of the whole body, of sensation, of mind, and of motion. And on this subject Galen, Alexander, Trallianus, Ætius, and Paulus Ægineta, agree in opinion with Aretæus. Hippocrates who, in various parts of his works, speaks of apoplexy, no where, as far as I know, mentions paralysis; and when he refers to this disease he employs the term apoplexia. Both Aretæus and Paulus Ægineta represent him as speaking of apoplexy in the leg. Celsus describes palsy and apoplexy by the general terms RESOLUTIO NERVORUM."* It is only necessary to add that paresis and palsy were used sometimes synonymously; and that, when a distinction was made between them, paresis was regarded as only a very slight or imperfect palsy.

GEN. VIII. SPEC. VI. Carus Paralysis. Palsy. Apoplexy and palsy contemplated as different degrees of a common disease by the Greeks.

Paresis how far different from palsy.

Palsy and apoplexy, however, are something more than the same disease merely varied in degree; the one, indeed may lead to and terminate in the other, but they very often exist separately and without any interference; and, notwithstanding their general resemblance, are distinguishable by clear and specific symptoms. But if the Greeks approximated them too closely, the greater part of the nosologists of modern times, as Sauvages, Linnéus, Vogel, Sagar, Cullen, and Young, have placed them too remotely, by regarding each as a distinct genus: the proper nosological arrangement seems to be that of co-species, as

Why the two should be regarded as distinct diseases: but not placed at so great a distance as they have been by many modern writers. Proper station apparently that of the present work.

* Treatise on Nervous Diseases, Vol. II. p. 1.

GEN. VIII. SPEC. VI. Carus Paralysis. Palsy.

they are ranked by Dr. Parr, as well as under the system before us.

Common causes of apoplexy very frequently those of palsy, especially compression.

The common causes of apoplexy are usually asserted to be those of palsy: and considering how frequently palsy occurs as a sequel of apoplexy, the assertion has much to support it: for compression is here also as well as in apoplexy a very frequent cause. Yet as compression does not seem to be the only cause of apoplexy, it is still less so of palsy in all its modifications, and we shall still more frequently have to resolve the disease into some of those causes of general, and especially of nervous, debility, which we have already noticed as occasionally giving rise to apoplexy, and which we have more particularly illustrated under the genus CLONUS of the preceding order.

Yet the disease often produced from other causes, and especially those of nervous debility.

Often introduced by precursive signs.

Palsy is often preceded by many of the precursive signs we have already noticed as forewarning us of apoplexy; and it commonly commences slowly and insidiously; a single limb, or a part of the body being at first troubled with an occasional sense of weakness or numbness, which continues for a short time and then disappears. A single finger is often subject to this token, as is one of the eyes, the tongue, or one side of the face.

Nerves chiefly affected those of voluntary motion: but the accompanying nerves of feeling commonly participate in a greater or less degree.

Action of the heart and lungs little interfered with; and hence a material difference between palsy and apoplexy.

The nerves chiefly affected are those subservient to voluntary motion, but the accompanying nerves of feeling in most cases participate in the torpitude though not in an equal degree, and sometimes not at all. "I never", says Dr. Cooke, "saw a case of palsy in which sensation was entirely lost": though such cases seem sometimes to have occurred. The action of the involuntary organs, and especially of the heart and lungs, are but little interfered with, though in a few instances something more languid than in a state of ordinary health. And in this respect we perceive a considerable difference between paralysis and apoplexy, in which last the heart appears to be always oppressed, and the breathing laborious. The faculties of the mind, however, rarely escape without injury, and especially the memory; insomuch that not only half the vocabulary the patient has been in the habit of using is some-

times forgotten, but the exact meaning of those terms that are remembered; so that a senseless succession of words is made use of instead of intelligible speech, the patient perpetually misusing one word for another, of which we have given various examples under MORIA *imbecillis*, or MENTAL IMBECILITY*. And it is hence not to be wondered at that palsy should occasionally impair all the mental faculties by degrees, and terminate in fatuity or childishness.

GEN. VIII. SPEC. VI. Carus Paralysis. Palsy. The mind, and especially the memory rarely escapes injury.

We have frequently had occasion to observe and to prove by examples, that where any one of the external senses is peculiarly obtuse or deficient, the rest are often found in a more than ordinary degree of vigour and acuteness, "as though the sensorial power were primarily derived from a common source, and the proportions belonging to the organ whose outlet is invalid, were distributed among the other organs"†. Something of this law seems to operate in many cases of palsy, and is more and more conspicuous in proportion to the extent of the disease: for in hemiplegia and paraplegia, the half of the body that is unaffected has not unfrequently evinced a morbid increase of feeling. Dr. Heberden attended a paralytic person whose sense of smell became so exquisite as to furnish perpetual occasions of disgust and uneasiness: and he mentions one case in which all the senses were exceedingly acute.

General pathological remark explanatory of many symptoms of palsy.

Hence the unaffected side sometimes evinces a morbid increase of feeling. Illustrated.

It is to this principle we are to resolve it that where the disease confines itself to the motory nerves of an organ alone, and the sensific are not interfered with, the feeling of the palsied limb itself is sometimes greatly increased, and sometimes exacerbated into a sense of formication, or some other troublesome itching. "I have seen several instances", says Dr. Cooke, "in which paralytic persons have felt very violent pain in the parts affected, particularly in the shoulder and arm;"‡ and the remark, if necessary, might be confirmed from numerous authorities.

Hence, too, the sensific fibres of the affected limb sometimes possess excess of feeling.

Palsy, however, is strictly a disease of nervous debi-

Sometimes the whole nervous system manifestly affected:

* See Vol. III. pp. 188, 189.

† See Vol. III. p. 260, and compare with p. 27.

‡ Ut suprà, p. 5.

GEN. VIII. SPEC. VI. Carus Paralysis. Palsy.

and the sensorial balance disturbed in various ways.

Hence the affected limb sometimes warmer, sometimes colder than natural;

retains its bulk or wastes away.

Passions of the mind affected.

Illustrated.

lity, and where it shows itself extensively, the whole nervous system is affected by it. The consequence of which is, as we have already shown in treating of entastic, and particularly clonic spasm, that the sensorial fluid in all its modifications is secreted or communicated irregularly, and its balance perpetually disturbed, so as to operate upon the mind as well as upon the body: whence some parts are too hot and others too cold, and even the affected limb itself, according to the nature of the affection, and its limitation or extension to different sets of nerves, will be warmer or colder than in its natural temperature, and will waste away, or retain its ordinary bulk; while the passions of the mind will participate in the same morbid irritability, and evince a change from their constitutional tenour. Persons of the mildest and most placid tempers will often discover gusts of peevishness and irascibility; and men of the strongest mental powers have been known to weep like children on the slightest occasions. In a few instances, however, an opposite and far more desirable alteration has been effected. "I had several years ago," says Dr. Cooke, "an opportunity of seeing an illustration of this remark in the case of a much respected friend. The person to whom I allude had always, up to an advanced age, shown an irascible and irritable disposition: but after an attack of palsy his temper became perfectly placid and remained so until his death about two years afterwards."*

Affected limbs commonly supposed to be colder than in ordinary health: especially by Earle.

By Abercrombie supposed not to be colder.

It is the general opinion that paralytic limbs are uniformly colder than in a state of health: and Mr. Henry Earle has ably supported this opinion upon an extensive scale of examination, in an article introduced into the Transactions of the Medico-Chirurgical Society†. Dr. Abercrombie, on the contrary, in a correspondence upon this subject with Dr. Cooke, gives it as his opinion that paralytic parts do not become colder than natural; and adds, "that he had long ago observed that they are sometimes warmer than sound limbs, but without being able

* See Vol. III. p. 12. † Medico-Chirur. Trans. Vol. VII.

to account for it." The present author has frequently made the same remark, though he has more commonly found them below the ordinary temperature. The facts, therefore, on both sides are correctly stated; and the discrepancy is to be resolved into the nature and extent of the sets of nerves that are immediately affected, whether sensific, motific, or both, and into the disturbed and irregular, the hurried or interrupted tenour with which the nervous fluid is secreted or supplied.

GEN. VIII. SPEC. VI. Carus Paralysis. Palsy.

Diversity of opinion reconciled.

The learned Pereboom, who has followed Boerhaave and Heister in attaching himself to the apparently correct doctrine of the Galenic school; that the nerves issuing from the sensorium are of two distinct sorts, one subservient to sensation, and the other to muscular motion, and has so far accorded with the physiology attempted to be established in the commencement of the present volume, has divided palsy, which he describes as a genus, into three species; a nervous, muscular, and nerveo-muscular; by the first meaning that form of the disease in which there is a deprivation of sense without loss of motion; by the second, loss of motion while the sensibility remains; and by the third, loss both of sense and motion*. The specific names are here at variance with the physiology; for if it be true that muscular motion is as dependent upon the nerves as sensation, then, palsy affecting the moving fibres, is as much entitled to be called *nervous* as palsy affecting the sentient. Nor are the few cases to be met with of privation of feeling without loss of motion, strictly speaking, to be regarded as palsies. They are rather, as Aretæus has correctly observed, examples of anæsthesia, or morbid want of the sense of feeling, and as such will be found described in the present system under the name of PARAPSIS EXPERS†.

Subdivision of Pereboom founded on a true physiology;

but not quite correctly expressed,

and unnecessarily complicated.

On this account the present author, in his volume of nosology, thought it better to follow up, though with a considerable degree of simplification, the subdivisions of

Hence a more simplified subdivision offered in the present system of nosology.

* Acad. Nat. Cur. Soc. De Paralysi, 8vo. Hornæ.

† Class. IV. Ord. II. Gen. V. see suprà, p. 283.

GEN. VIII. SPEC. VI. Carus Paralysis. Palsy.

Sauvages and Cullen, and to distinguish the disease under the three following varieties founded upon the line or locality of affection:

α Hemiplegia. Hemiplegic Palsy.	The disease affecting and confined to one side of the body.
β Paraplegia. Paraplegic Palsy.	The disease affecting and confined to the lower part of the body on both sides, or any part below the head.
γ Particularis. Local Palsy.	The disease affecting and confined to particular limbs.

Some local insensibilities of the external senses not properly referable to this species: and why.

Some nosologists have transferred to this division the local insensibilities and atonies of the external senses or parts of them, as though they were idiopathic affections. It is rarely, however, or never, as Aretæus has justly remarked, that they are not connected with other symptoms and other derangements of such organs and their respective functions: and hence, they rather belong to the second order of the present class, than to paralysis in the strict sense of the term. They are anæsthesiæ, —νόσοι παραλύτικοι, or παρέτικοι, rather than παράλυσεις; and in the system before us are arranged accordingly.

α C. Paralysis Hemiplegia. Hemiplegic palsy. Mostly a sequel of apoplexy: but sometimes found without preceding apoplexy:

HEMIPLEGIA, the first of the above varieties of palsy, is far most frequently met with as a sequel of apoplexy, and especially of atonic apoplexy, or that in which the energy of the nervous system is peculiarly diminished, and irregular. The usual exciting causes of apoplexy are in consequence those of palsy, and need not be enumerated in the present place. In a few instances, however, hemiplegia occurs without preceding apoplexy; and hence, distinctly proves that pressure, or at least such a pressure as is demanded to produce somnolency, is not essentially necessary. Mr. John Hunter, as we have already observed, was inclined to think that pressure from effused blood, was, in every instance, the cause both of this

disease and of apoplexy; but in allowing, as he has done, that on one occasion at least he was called to a patient who died of a gouty affection of the brain "*with symptoms similar to apoplexy*", and without any extravasation whatever, he directly yields the point of compression as an universal cause: for if atonic or retrocedent gout may produce apoplexy or palsy without pressure on the brain, so may many other atonic powers, operating as effectively on the sensorium. One of the most frequent of these powers is a debilitated and paretic state of the liver; and hence those persons are peculiarly subject to this variety of palsy, who have spent the earlier part of their lives in an habitual course of intemperance. Hoffman has particularly noticed this cause; and Morgagni describes the case of a man advanced in years who was attacked with jaundice and hemiplegia simultaneously; the jaundice affecting the hemiplegic side alone, which was the right, and that with so much precision, that the nose was of a deep yellow on the one side, and of its proper colour on the other, which were divided from each other as by a ruled line. Other causes are exposure to the rays of the sun, drinking cold water and bathing in it when heated, repelled eruptions, and chronic rheumatism.

GEN. VIII. SPEC. VI. α C. Paralysis Hemiplegia. Hemiplegic palsy.

evidenced from the admission of J. Hunter.

A debilitated and paretic state of the liver, sometimes a cause.

Illustrated.

At times accompanied with a jaundice of the hemiplegic side alone.

Other causes.

As apoplexy has its percursive symptoms occasionally, so also has hemiplegia, and particularly when it is connected with a plethoric habit: for in this case, the veins of the neck and face often appear turgid, there is an obtuse pain in the head, the tongue moves with some difficulty, and particularly on one side, the perception and memory become impaired, and the patient feels a tendency to drivel at one corner of the mouth rather than at the other. The onset, like that of apoplexy, is at last sudden; and if the patient be standing he drops down abruptly on the affected side.

Precursive symptoms of hemiplegia.

Attack.

The progress of the disease is uncertain; and depends very much upon the state of the nervous system at the time of the attack. If there be no chronic debility, or other morbid condition of the sensorium, the patient will

Progress of the disease.

Duration.

GEN. VIII. SPEC. VI. a C. Paralysis Hemiplegia. Hemiplegic palsy. Result.

sometimes recover entirely in a week or even less; but if this system, or some particular part of it, be in an infirm state, he recovers only imperfectly; and obtains, perhaps, a thorough or a limited use of the lower limb, while the upper remains immoveable; or he is compelled to pass through the remainder of a wretched and precarious existence with only one half of his body subservient to his will, the other half being more dead than alive, and withering, perhaps, with a mildew-mortification*.

Proofs of irregular flow and distribution of the sensorial fluid.

We have stated that in this disease, as, indeed, in all others accompanied with an atonic disturbance of the nervous energy, there is not only a great irregularity in its flow, but a great and confused disproportion in its distribution to different parts of the body; so that the stock, whether of sensific or motific fluid, which is altogether deficient in some parts, seems to be sent in a hurried and tumultuous accumulation to others, which are in consequence irritated with an undue degree of sensation or motivity, in the most capricious manner. Dr. Cooke† and Dr. Abercrombie‡ have collected numerous and highly interesting examples of these curious anomalies, and may be consulted with great advantage by those who are desirous of following up the subject more minutely.

Transverse hemiplegia of Sauvages what.

Other singular examples.

Sauvages gives a case from Conrad Fabricius, of what he calls transverse hemiplegia, in which the disease was confined to the arm on one side, and the foot on the other§: and Ramazzini speaks of a patient whose leg, on one side, had lost its feeling, but retained its power of motion, while the other leg had lost its power of motion but retained its feeling‖. In some instances, indeed, the entire feeling of one side is said to have been lost, and the entire motivity on the other side¶; and in a few rare examples persons during the paroxysms, and even for some time afterwards, have felt, on the affected side, a sensation

Sense of pungent heat from cold bodies on the affected side: and of cold

* See Vol. II. Cl. III. Ord. IV. Gen. XII. Spec. II.

† On Nervous Diseases, Vol. II. Part I. ‡ Treatise on Apoplexy and Palsy.

§ Spec. Gen. XIX. Ord. III. Cl. VI.

‖ De Morb. Artif. 286. See also Helster, Wahrnemungen. I. 265.

¶ Eph. Nat. Cur. passim.

of pungent heat from cold, and especially polished bodies, and of painful cold from an application of hot bodies.

Gen. VIII. Spec. VI. a C. Paralysis Hemiplegia. Hemiplegic palsy.

It is not, perhaps, very difficult to account for this last singularity. Where the sensibility is morbidly accumulated in a weak limb, as it often is in hemiplegia, sometimes so much as to give a painful sense of formication, cold not only excites action but becomes almost as pungent an irritant as an actual cautery; in the correct language of the poet

from hot bodies. This singular feeling explained.

—Boreæ penetrabile frigus adurat*.

And hence in climbing lofty mountains, as the Alps and the Andes, the traveller frequently finds his skin more completely blistered from the sharp cold by which he is surrounded than by an exposure to an equinoctial sun. On the contrary, the morbid halitus or perspiration into which the application of hot bodies often throws a limb, in the same relaxed and debilitated state, produces an unusual sense of coldness in consequence of the evaporation. And we may hence explain the singular case recorded by Dr. Falconer, of a gentleman who after a paralytic attack, felt his shoes very hot when he first put them on, and gradually become cool as they acquired the warmth of his feet; the re-action, and consequent increase of moisture thrown forth from the surface of the feet producing the difference of sensation.

Singular example.

In the Transactions of the Medico-Chirurgical Society† there is a very singular case of Dr. Viesseux, who was gradually attacked with an imperfect hemiplegia which at first showed its approach by perturbed sensations, and vertigo, with a feeling of sea-sickness, a sight of objects reversed, a difficulty in swallowing liquids, and a total loss of voice, while the powers of the mind remained unimpaired, so that he could watch all his symptoms. Shortly after this the whole of the right side became utterly insensible, the insensible part being divided from the sensible by a geometrical line running down the body in a vertical di-

Additional illustration.

* Virg. Georg. i. 93. † Vol. VII. p. 216.

GEN. VIII. SPEC. VI. « C. Paralysis Hemiplegia. Hemiplegic palsy.

rection: and in about three months more the insensibility of the right side of the head, accompanied with a debility of all the voluntary muscles was transferred to the left, the right re-acquiring its antecedent powers; but all the right side below the head still continuing to possess its former torpitude. Here, also, there was a very different sense of heat and cold on the opposite sides; for whilst the left was influenced naturally, the right had the falsified sensation just noticed in Dr. Falconer's case, so that in getting into a cold bath or a cold bed, the right side had a feeling of heat, while the left side felt cold, as it should do. Hot bodies, in like manner, felt cold to the diseased side, apparently from the cause just stated. And that this was the real cause seems manifest from the patient's having often a feeling of a cold dew, or of cold water on the surface, and especially over his face, which induced him to wipe himself as if he had been wet. It is, perhaps, more singular that, though plunging his right or affected hand into cold water gave him a sense of lukewarmness, plunging it into boiling water gave him a disagreeable sensation, but very different from that of either heat or cold. This sensation seems to have been that of numbness, and was probably produced in consequence of the accumulated sensibility being rapidly carried off by the extreme heat of the water, as a like torpitude is produced by the opposite effect of extreme cold, and the rapid exhaustion of sensibility which is so well known to follow on its application.

This irregular distribution of sensorial power sometimes dangerous.

This morbid disturbance and irregular distribution of sensorial power is sometimes productive of the most alarming consequence; for in a hemiplegic state of the bowels some parts are, in certain cases, so acutely sensible, and others so utterly insensible, that while ordinary purgatives are incapable of exciting evacuations from the torpitude and irresponsibility of the palsied parts, they are sufficient to occasion inflammation, and have actually occasioned it in the parts exacerbated by accumulated sensibility, as certain experiments of M. Magendie have sufficiently established.

Explained.

It is owing to the same irregular distribution of senso-

rial power, where every department of the nervous system participates in the diseased state of the sensorium, that we sometimes behold hemiplegia, and particularly imperfect hemiplegia united with other affections of the same system. The symptoms of hypochondrism are peculiarly apt to associate with it, in which case the bravest hero will often lose all his magnanimity and sit down and weep like a child: and in the celebrated geologist M. de Saussure, we find a still more complicated instance of hemiplegia, hypochondrism, and chorea. The disorder crept on by imperceptible degrees, and was accompanied with various anomalies. Both sides were weakened, but the left suffered chiefly; yet, by the aid of a stick, he could still drag forward the left leg. By some unknown means he had taken up a morbid notion, very common to hypochondriac patients, of the difficulty of passing through a door-way when wide open without being squeezed to death; and hence, at the very time in which he could cross his room with a tolerably firm step, the moment he reached the door, which was of capacious breadth and thrown open for his passage, he tottered and precipitated his motions with the jerk of a St. Vitus's dance, as though he were preparing for the most perilous leap: yet as soon as he had accomplished the arduous undertaking, he again became collected, and passed on with comparative ease till he had to encounter another adventure of the same kind which was sure to try him in the same manner *. Tulpius gives a somewhat similar case in which hemiplegia was united with beribery †.

Gen. VIII. Spec. VI. α C. Paralysis Hemiplegia. Hemiplegic palsy.

Hemiplegia hence sometimes united with hypochondrism and other affections of the nervous system. Exemplified in Saussure.

The hemiplegia betraying not only hypochondrism,

but some symptoms of chorea.

Sometimes united with beribery.

PARAPLEGIA or the SECOND VARIETY of palsy, has generally been conceived to depend altogether upon a diseased affection of the spine in its bones, ligaments, or interior, most frequently in the region of the loins; in consequence of which the spinal marrow becomes pressed upon, or otherwise injured, independently of any complaint of the brain. That this is a common cause is unquestionable,

β C. Paralysis Paraplegia. Paraplegic Palsy. Chiefly dependent upon a diseased spine.

* Medico-Chir. Trans. Vol. VII. p. 214. † Lib. IV. Cap. 5.

GEN. VIII. SPEC. VI. β C. Paralysis Paraplegia. Paraplegic palsy.

and a cause that often operates long without external signs: for the vertebral extension of the dura mater may be thickened, or a serous fluid effused, or blood be extravasated within the vertebral cavity; or a tumour may be formed in some part of it, or the spinal marrow itself may undergo some morbid change. But the best practical observers of the present day concur in opinion that paraplegia, like hemiplegia, is produced still more frequently by causes operating on the brain than confined to the spine. Of this opinion is Dr. Baillie, who ascribes it chiefly to pressure on the brain *, Sir Henry Halford, Sir James Earle, and Mr. Copeland †. Some kind of affection of the head, indeed, will commonly be discovered from the first, if we accurately attend to all the symptoms; some degree of pain, or giddiness, or sense of weight or undue drowsiness, or imperfection in the sight. And hence, many of the causes of paraplegia are evidently those of hemiplegia, operating probably upon a different part of the brain.

Produced in various ways: but oftenest by causes operating on the brain: as affirmed by many of the first authorities of the day.

Precursive signs.

Many of the causes of hemiplegia those of paraplegia.

This form of paralysis may take place at any age, but it is more frequent as we advance beyond the middle of life; and Dr. Baillie has observed that it occurs oftener in men than in women; for which it is by no means difficult to account, considering the greater hurry and activity of life pursued by the former. The disease, in many instances, makes an insidious approach. There is at first nothing more than a slight numbness in the lower limbs with an appearance of stiffness or awkwardness in the motion of the muscles: these symptoms increase by degrees; there is great difficulty in walking, and an inability in preserving a balance; the aid of a staff or the arm of an assistant is next demanded: and the urine is found to flow in a feeble stream, or perhaps involuntarily. The bowels are at first always costive; but as the sphincter loses its power of constriction, the motions at length pass off involuntarily. The disease may continue for years, and

May occur at any age, but chiefly after the middle of life.

Occurs often insidiously.

Progress of the disease.

Termination.

* Trans. Med. Vol. VI. Art. II.

† Treatise upon the Symptoms and Treatment of the diseased Spine.

the patient at last sink from general exhaustion. It sometimes, but rarely, terminates in a recovery *.

GEN. VIII. SPEC. VI. β C. Paralysis Paraplegia. Paraplegic palsy. Origin and progress when produced by an injured or diseased state of the spine, as described by Pott.

When an injured or diseased state of the spine is the origin of paraplegia, the complaint shows itself suddenly, or makes its advances insidiously according to the nature of the cause: and for a knowledge of this form of the malady we are chiefly indebted to Mr. Pott †, who, however does not think that it properly belongs to the species paralysis, though there seems no sufficient reason why it should not be so arranged, as in truth it has been by most pathologists from the time of Galen, who seems not only to have understood its nature, but to have contemplated it in this view ‡. The disease, however, must not be confounded with RHACHYBIA, or distortion of the spine, from debility of muscular power, of which we have already treated § in the present volume.

It sometimes happens in hemiplegia, that one or more vertebræ have been pushed, by sudden force, a little way out of their proper position; and in this case a considerable degree of numbness, together with less motion in one or both the lower limbs, is almost sure to follow, too often succeeded by a paralysis of the sphincters of the rectum and bladder, and consequently an involuntary discharge of feces and urine: and if the luxation should take place in the dorsal or cervical vertebræ, the organs of digestion may all, more or less, suffer, the respiration become affected, and the spine itself exhibit a considerable degree of curvature. And the same effects are still more likely to follow, and even to a greater extent and with still more serious mischief, from an idiopathic affection of some part of the spinal chain, arising from inflammation, scrophula, rickets, mollifaction, or caries; from compression by some effused fluid, or a thickening of its external tunic, or even

Curvature of the spine.

* Practical Essay on the Diseases and Injuries of the Bladder. By Robert Bingham. 1822.

† Remarks on that kind of Palsy of the lower limbs which is frequently found to accompany a curvature of the spine, 8vo. 1788.

‡ De Locis affectis, Lib. IV. cap. VI.

§ Cl. IV. Ord. III. Gen. I. Spec. 3.

Gen. VIII. Spec. VI. β C. Paralysis Paraplegia. Paraplegic palsy.

of the substance of the spine itself; of which last M. Portal has given a singular example *.

Often found in ill-nursed infants.

In the last case the disease, for the most part, makes its approach slowly, and is often found in weakly and ill-nursed infants. Its precursive symptoms are commonly languor, listlessness, weakness in the knees, and a pale and shrivelled skin. As it advances, there is a difficulty in directing the feet aright when walking, the legs involuntarily cross each other, and the little patient is perpetually stumbling upon level ground, till at length he is incapable of walking at all. In adults the progress of the disease is more rapid than in childhood.

Connected like hemiplegia occasionally with a morbid state of the mental powers, and even where the spine is primarily affected.

Like hemiplegia, this variety is sometimes connected with a morbid state of the mental powers, and particularly with hypochondrism, and this too where the disease proceeds from an organic lesion of the spine. Dr. Cooke has an instructive case in illustration of this, in an officer of the army, aged forty-five, who had for many years been exposed to the hardships of a military life, particularly to extremes of heat and cold in various climates. "For two or three years previous to the paralytic attack, he had complained that his state of health was deteriorated, although no precise symptoms of disease could be pointed out either by himself or by his medical friends. His appetite was good, his bowels regular, though inclined to costiveness, and his usual robust appearance was not diminished. He entertained some fanciful notions respecting the state of his health: and from some uneasy sensations about the sacrum he supposed that he had internal hemorrhoids, though no evidence of their existence could be perceived by his physicians, by whom he was considered as hypochondriacal." After having suffered for two or three years he gradually lost the power of walking without some support for one of his hands. He went to Bath and had the hot water pumped upon his loins: soon after which he complained of pain in the lumbar region, which was followed by a collection of fluid behind the great trochanter of the left

Instructive illustration from Cooke.

* Anatomie Medicale, p. 117.

side, which burst externally, and was discharged daily, in considerable quantity. The paraplegia was now complete: the lower extremities being quite useless: the feces and urine, which, for a considerable time, the patient had with some difficulty retained, came away involuntarily: his strength rapidly wasted; he became much emaciated; and, at the end of three months after his return from Bath he died; retaining the use of his senses and his intellectual faculties to almost the last instant of his life *.

GEN. VIII. SPEC. VI. β C. Paralysis Paraplegia. Paraplegic palsy.

Where the upper part of the spine is affected, the superior limbs are usually divested of mobility or sensibility, or both, while but little disturbance, in a few rare instances, takes place in the inferior. The most singular example of this sort that has occurred to the present writer, is contained in a case related by M. Rullier, of Paris †. The subject was forty-five years of age, and had evinced a slight rhachetic tendency from infancy, accompanied, as is often the case, with a considerable precocity of intellectual powers; the dorsal portion of the vertebral column evincing a little distortion, so as to give some degree of elevation to the right shoulder; but which did not proceed further. The patient, from early youth, had indulged himself in every concupiscent indiscretion, and especially in an unbounded and extravagant intercourse with females, which frequently reduced him to a state of exhaustion amounting almost to deliquium. It was not, however, till the age of thirty-four, that he first began to perceive any serious difficulty in the movement of his arms, which was soon connected with some degree of pain and swelling in the distorted part of the vertebral chain. The complaint made a rapid progress, and the patient in a short time lost the entire use of these limbs, though their sensibility continued to the last, and appeared to grow morbidly acute, as he would not suffer any one to touch them, on account of the pain produced by such contact. He became indeed highly irritable in his tem-

Sensibility and mobility most injured where the upper part of the spine is affected.

Singular case from Rullier.

* On Nervous Diseases, Vol. II. Part. I. p. 43.

† London Medical and Physical Journal. July, 1822. p. 80.

Gen. VIII. Spec. VI. β C. Paralysis Paraplegia. Paraplegic palsy.

per, but could walk to a considerable distance, enjoyed company and his usual meals, and still retained an immoderate appetency for venereal pleasures, with the fullest means of indulging it. Hectic fever, however, now attacked him with phthisis, and he at length fell a sacrifice to such a host of marshalled evils. On a post-obit examination, the chief organs found to be affected were the lungs, and the spinal marrow at the seat of distortion. The last indeed presented a very singular appearance. From its origin to the fourth pair of cervical nerves, it was quite natural; but from this point, through an extent of six or seven inches in length, the whole substance of the column was reduced to the most diffluent state of mollifaction, like what we have already noticed as sometimes found in mollifaction of the brain; while below this length, the cord appeared again to be firm and uninjured; a few flakes of medullary matter were alone found in the morbid fluid which had usurped its place, but altogether disorganised and unconnected. And we here therefore, behold, to adopt M. Magendie's remarks upon this very marvellous affection, a man enjoying, almost to his last hour, great moral activity, powerful generative faculties, a free movement of his inferior extremities, and a keen sensibility of the superior; who nevertheless, for an uncertain, but probably a very considerable period, had been destitute of one third part of the substance of the spinal marrow; and possessed no kind of communication between the cervical and dorsal portions of this cord, unless we suppose something of the sort to have been maintained by means of the surrounding membranes; a supposition, however, which is entirely gratuitous, and at most capable of throwing but little light upon the subject.

Appearances on dissection.

Mollifaction of the spinal marrow.

γ C. Paralysis particularis. Local palsy.

Local palsy is often produced by the general causes of the other varieties, probably operating in a less degree or more partially on the brain. We have already seen that it frequently takes the lead of the general affection, and appears for some days or weeks antecedently, in an imperfect movement of the tongue, or of one eye, or of one side of the mouth, sometimes of one or more of the

Often produced by the preceding causes: and sometimes anticipates the preceding forms.

fingers, or of an entire arm. And if, in this incipient state of the disease, proper evacuants, or other means, be instantly had recourse to, the paralytic tendency may be subdued, and the complaint be limited to these local affections, and in a few days be entirely removed.

Gen. VIII. Spec. VI. γ C. Paralysis particularis. Local palsy.

This variety, however, is often the effect of other causes tending to destroy the irritability of the nervous system, or particular parts of it, such as exposure to certain metallic fumes, or other means of absorbing metallic particles, especially those of mercury and lead: and, above all, exposure to keen blasts of cold and damp air. This last is, perhaps, the most common and effective cause of local palsy, and is peculiarly operative where the limb or organ so exposed is in a state of relaxation and perspirable moisture, whether from previous exercise, or great heat of the atmosphere. A palsy on one side of the mouth, of the muscles of one eye, of one of the cheeks, of an arm or a leg, is in this manner frequently produced, and becomes, at times, of very great obstinacy. Occasionally, indeed, the torpitude extends much further than to a single limb, and various organs are involved in its mischief. "A watchman," says Dr. Powell*, "on quitting his duty, after a night of severe cold, was attacked by sudden and violent general pains in his limbs, which soon departed, and left him in a state of universal palsy of the muscles of voluntary motion. He had lost all command over the muscles of his limbs or trunk; but the joints were unaltered in their external appearance: they were perfectly flexible; and it gave him no pain if you moved them in any direction. The sphincters also of the rectum and bladder had lost their usual powers of retention, and he passed both stools and urine involuntarily and unconsciously. His circulation was not affected in any cognisable degree, and his mind retained its usual powers. His voice was not lost: the hot bath and other remedies were tried in vain; he died: but, on examination, there was no congestion, or effusion, or alteration of struc-

Often produced by causes destroying irritability: as metallic fumes; and cold damp air.

Illustrated.

* Med. Trans. Vol. v. p. 185.

GEN. VIII. SPEC. VI. γ C. Paralysis particularis. Local palsy.

ture of any kind discoverable." In this case the motific nerves, or those derived from the anterior trunk of the spinal chord, seem to have been alone affected; and in those slight palsies induced by sudden cold or damp, applied to one side of the face, and commonly known by the name of *blights*, the nerves that lose their power are branches of the portio dura, the respiratory nerve of Mr. Charles Bell, while it is rarely that the twigs of the trigeminus, which commonly accompany them for the purpose of conveying sensation, are united in the mischief.

Motific nerves here chiefly affected: as also in blights.

Medical treatment of palsy: important discriminations.

In the treatment of palsy, it is necessary to distinguish between its attack and its confirmation, and as much as possible to ascertain the nature of its predisponent and exciting cause.

As compression of the brain is a common cause, copious bleeding and purgatives are often necessary: almost the unicum remedium of J. Hunter.

Generally speaking, in hemiplegia, and very frequently in paraplegia, and even in local palsy, the causes of apoplexy are those of the present affection. And as of these causes, compression of the brain has appeared to be by far the most frequent in the former disease, so we ought to regard it, and shall generally find it, in the latter. And hence, copious bleeding, and purgatives not only recommend themselves to us from the good effects we have already seen them produce in apoplexy, but from the actual and general advantage which has been derived from them in palsy itself. Mr. John Hunter was so fully convinced of the benefit of sanguineous depletion that he made it his unicum remedium, though he allowed of cathartics subordinately. Upon this subject, however, he writes with more force than discrimination. Referring to the stimulant plan pursued by some practitioners, he observes, "this is even carried further than blistering," to which he also objects: "we hardly see a man taken with all the signs of an apoplexy, where a paralysis in some part takes place, or hemiplegia, but he is immediately attacked with cordials, stimulants, electricity, &c. Upon a supposition that it is nervous debility, &c.; the poor body is also tortured because it cannot act, the brain not being in a condition to influence the voluntary muscles. We might, with exactly the same propriety, stimulate the

fingers when their muscles are torn to pieces. We ought to bleed at once very largely, especially from the temporal artery, till the patient begins to show signs of recovery, and to continue it till he may begin to become faintish. We should give saline purges freely to diminish impetus, and promote absorption; then quietness should be enjoined, and as little exercise of body as possible, and especially to avoid coughing and sneezing. Plain food should be directed, and but little of it."*

Gen. VIII. Spec. VI. Carus Paralysis. Palsy. Treatment.

All this is excellent, as a general rule; but the rule must admit of exceptions. In treating of apoplexy we have noticed it as dependent on two very different and opposite states of the constitution, an entonic and an atonic. And the same diversities of constitution are to be found in paralysis. Now under the entonic state there can be no question, and there ought to be no exception: and the boldness of the practice should be regulated by the nature of the exciting cause. Where this is over-eating or intoxication, eighteen or twenty ounces of blood may be taken away, with advantage, at once; in a few hours after, twelve or fifteen ounces more; and the venesection may be repeated a third or even a fourth time, if necessary. Dr. Cross pursued this active plan, in the case of a man thirty-five years old who became hemiplegic from excess of drinking, and at the same time gave calomel to the amount of twenty-five grains to a dose, and in a few days effected a complete cure†. And similar instances of success are to be found in all the writers upon the subject.

But this rule admits of exceptions. Palsy as dependent as apoplexy upon the two opposite states of entony and atony. Under the first the reducent plan should be general and boldly followed up.

Its success exemplified.

Even in atonic apoplexy, it has been observed that venesection is occasionally necessary; and it may be equally necessary in atonic paralysis; for here also effusion may take place both of blood and serum: of serum, indeed, more frequently from deficiency than from excess of vigour; and of blood, from a debilitated state of the vessels, and their greater facility to be ruptured from slight causes, as a violent fit of coughing or sneezing, of joy or

Bleeding sometimes necessary even in atonic palsy as well as in atonic apoplexy.

* On Blood and Inflammation, p. 213.

† Thomson's Annals of Philosophy, No. XLIV. p. 121.

GEN. VIII. SPEC. VI. Carus Paralysis. Palsy. Treatment. Strikingly illustrated.

terror. Absorption may not easily take place in this state of constitution, but emptying the vessels alone will gain space by stimulating them to contract their diameter.

I cannot better illustrate this, than by the following case from Dr. Abercrombie: "An old and very poor woman, aged about seventy, thin, pale, and withered, having gone out to bring water from one of the public wells, on the morning of the second of July, 1818, fell down in the street speechless, and completely paralytic on the right side. Nothing was done till about two P.M. when she was found stupid, but not comatose, yet completely speechless and paralytic: her pulse of good strength, and about ninety-six. She was bled to fifteen ounces. Purgative medicine was ordered, and cold applications to the head: on the third she was considerably improved both in speech and motion; but having become rather worse at night, the bleeding was repeated, and the purgative medicine continued. From this time she improved gradually: at the end of a week she was able to walk with a little assistance, and speak pretty distinctly, and by the end of another week she had entirely recovered her former health."*

Case, and its fortunate issue explained.

Nothing could be more judicious than this treatment, and the result corresponded with the views of the enlightened practitioner. There can be no doubt that in this case a vessel had suddenly been ruptured: the labour in which the patient was occupied was violent, the season was that of the summer, and the temperature probably very hot: the stupor and state of the pulse equally indicated compression of the brain.

When bleeding may be improper and mischievous.

Thus far bleeding may be allowed, and indeed, ought to be imperatively enjoined. But there are some cases in which it is altogether a venture, and others in which it is considered on all hands to be injurious. Even Mr. Hunter himself recoils from the practice where hemiplegia is apparently a result of retrocedent gout; and if we follow up the spirit of this forbearance, we shall be induced to abstain equally in all instances where there is a like diminu-

* Treatises, &c. p. 15.

tion of sensorial power—in all instances of atonic paralysis, let the exciting cause be what it may, where there is no stertor, no stupor, or vertigo, no convulsion or other irregular nervous action, and the pulse, instead of being firm, is feeble and intermittent. For it should never be forgotten that, if many patients have recovered after bleeding, in suspicious circumstances, others have died after it, and probably in consequence of it, while great numbers have derived no benefit whatever. The advice of Dr. Cooke upon this subject is therefore founded in the truest wisdom, and cannot be too extensively committed to memory: "Each individual case must be viewed in all its circumstances, and by a careful consideration of them our practice should be regulated. Before we prescribe blood-letting in hemiplegia we must investigate the age, strength, general constitution and habits of the patient, and above all the actual symptoms of the disease. In early or even in somewhat advanced life, if plethora and the various symptoms tending to apoplexy be present, I should not scruple to bleed freely both generally and topically. On the contrary, in great age, debilitated, leucophlegmatic habit, dropsical tendency, &c., I should think it right to abstain altogether from this and from every other powerful mode of depletion, unless there be an evident determination to the head, marked by flushing in the countenance, throbbing of the arteries, redness of the eyes."*

Gen. VIII. Spec. VI. Carus Paralysis. Palsy. Treatment.

Excellent discrimination of Cooke.

In purging we may proceed with less restraint: for even in debilitated and dropsical habits, stimulating the bowels is almost uniformly found useful: should there be serous, or even sanguineous effusion, absorption is hereby powerfully promoted; and if there be none, a beneficial revulsion will often be produced, and the stimulus will always be one of the most useful we can adopt. In a very debilitated state of the constitution, however, we should chuse the warmer in preference to the colder purgatives; and hence jalap, colocynth, or even aloes in preference to neutral salts: and it will also be serviceable to combine

Purging may be indulged with less restraint. Its general utility explained. The purgatives should be of the warmer rather than of the colder tribes.

* On Nervous Diseases, Vol. II. Part I. p. 141.

GEN. VIII. SPEC. VI. Carus Paralysis. Palsy. Treatment.

them with some distilled water impregnated with an essential oil, as mint, penny-royal, juniper, or rosemary.

Emetics not to be employed in sanguineous effusion, or at least for a few days: but cannot be employed too soon otherwise. Emetics powerful indirect tonics.

The next reducent remedy, worthy of notice, is emetics. If we have strong reason to apprehend a sanguineous effusion, this class of medicines ought not to be employed for a few days, and will hence always be doubtful in the first attack of entonic hemiplegia, as we have already observed they are in entonic apoplexy. But if we have no ground of such suspicion, they cannot be had recourse to too soon. In a certain sense they weaken, but they are at the same time among the most powerful indirect tonics that can enter into our practice. They rouse the system generally, solicit the torpid fibres to a resumption of activity, stimulate all the excretories, and especially those of the surface of the body, and thus promote absorption in every quarter and in every way.

Practice of Stoll highly rational.

In low or atonic hemiplegia the practice of Stoll was founded on the most rational principles. He first checked the hemiplegia by emetics, and then carried it off by external and local stimulants, as cantharides, in conjunction with pills of gum ammonia, myrrh, and aloes*.

Such, under different modifications, is the reducent course it seems proper to pursue in the general train of paralytic attacks when they first make their appearance. If this course succeed, the patient will soon recover, and, with a view of preventing a relapse, an extension of the reducent or tonic regimen, according to the nature of the case, as we have already noticed in the treatment of apoplexy, is all that we shall have further to prescribe.

But this course may not succeed: the disease may prove obstinate and become confirmed; and the practitioner be called upon to proceed further.

Subsequent treatment when the above does not succeed. General principle to invigorate the system generally,

Having removed, as far as we may be able, all pressure upon the sensorium, and so far given an opportunity of healthful play to its function, our next business is to reinvigorate its general energy, and extend it to the parts which it has ceased in a greater or less degree to actuate.

* Rat. Med. Part II. p. 92.

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Stimulants external or internal, or both, have been almost uniformly had recourse to for this purpose: but I cannot avoid thinking that the practice has been too indiscriminate, and, in many cases, far too precipitate. We have observed that in many cases of hemiplegia there is not only great local inactivity, but great irregularity of action; a tumultuous hurry of sensorial power to some parts, with an equal withdrawment of it from others. In all such cases we should proceed gently and palliatively rather than rapidly and forcibly: and to do nothing is better than to do too much. We should endeavour to allay the nervous commotion, and restore the agitated system to order by internal and external quiet of every kind. The patient should be kept as still as possible in a warm commodious bed and a well ventilated room. His diet should be plain, with the allowance of a moderate quantity of wine, or wine and water. Camphor, musk, valerian, and other warm sedatives, as ammonia, neutralized with citric acid, are here to be chiefly resorted to, if, indeed, we resort to medicines of any kind, and to these may be added the less stimulant metallic salts, and especially those of zinc and bismuth. The warm bath may be allowed two or three times a week, and if the nights be restless the inquietude may be subdued by hyoscyamus. And as this form of the disease is often connected with great general debility and a tendency to hypochondrism or lowness of spirits, cheerful and exhilarating conversation, and such occasional exercise in a carriage as may be indulged in without fatigue, will form very serviceable auxiliaries. In Pechlin* is to be found the case of a person called Peyreske, who is said to have been cured of a palsy accompanied with aphonia, by reading some favourite and agreeable authors. This may be an overstatement, or too much stress may be laid on this particular part of the general plan of treatment: but there can be no doubt that, in the form of the disease we are now contemplating, a gentle and insinuating amusement of this kind will not be without its effect.

and extend the growing energy to the diseased organs.

Stimulants have been employed too indiscriminately and too precipitately.

This remark explained.

A gentle and palliative plan often best at first, and why.

Warm well ventilated room, temperate allowance of wine.

Camphor and other warm sedatives.

Metallic tonics.

Warm bath.

Occasionally hyoscyamus.

Cheerful and exhilarating conversation: easy exercise.

Singular case of cure from perusing agreeable and amusing authors.

* Lib. III. Obs. 27.

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This tranquillizing and unostentatious plan I have found to answer wonderfully in many cases of that tumultuous and irregular action described in the preceding history of the disease before us. But where the case seems altogether confirmed and chronic, and an entire side, or some other extensive part of the body, shows a fixed loss of sense and voluntary motion, while every other part has resumed its healthy function, we may then, with safety, have recourse to the stimulant practice.

External and internal irritants.

This will consist of external and internal irritants, and Dr. Cullen has given a long and useful table of both. Of the former, the chief are friction by the hand or a flesh-brush; stimulating liniments prepared of the concentrated acids, or the caustic alkalies inviscated in oil or lard to render them less acrid and corrosive; brine or a strong solution of sea-salt; the essential oils of turpentine, or other terebinthinate substances; and various vegetable acrids as mustard, garlic, and cantharides or other blistering insects. The object of all these is the same: it is that of acting upon the origin of the nervous chain by stimulating it at its extreme end, and as we have numerous instances of the production of such an effect in a great variety of cases, particularly in those of trismus and lyssa, or canine madness, the principles of which we have endeavoured to elucidate under these diseases, we have reason to expect a like influence, and of a beneficial instead of a morbid kind, in the applications before us. Generally speaking, however, the irritation produced by a use of many of the siliquose and alliaceous or alkalescent plants, as mustard, horse-radish, and garlic, is more uniformly efficacious than that of cantharides; as the irritation excited is more considerable and of longer duration. Dr. Cullen tells us that he has reason to believe the use of liquid styrax in the proportion of one part to two of the old black basilicon, a favourite empirical composition, "has been of remarkable service in paralytic cases, and particularly in a debility of the limbs following rickets."*

External stimulants.

Their intention and effect.

The siliquose and alliaceous rubefacients more useful than blisters. Liquid styrax.

* Mat. Med. Vol. II. Part. II. Cap. V.

Many practitioners have, for the same purpose, been in the habit of burning moxa, or cotton alone, on different parts of the affected side. Dupuytren employed the former, and Pascal* the latter; and both, as they tell us, with great advantage. Baron Larry speaks in terms of high commendation of the first, and especially in spine-cases, or paraplegia. One of his examples is worth relating. The patient had been a sufferer for three years, and had violent and almost permanent pain in the extremities, tremor, emaciation, and sleeplessness; the spinous processes of the dorsal vertebræ projected, and were painful on pressure. The moxas were applied in pairs beginning from the tenth and eleventh dorsal vertebræ. On the first application all pain was removed, on the second, spontaneous motion was restored; and after the use of thirty moxas the patient walked without support†. Others have thought they derived more service from a repeated use of sting-nettles. Some again have employed issues, others setons, and others the potential or even the actual cautery. This last mode of treatment, however, is best calculated for that form of hemiplegia produced by a diseased spine. Mr. Pott found the use of caustics applied on each side of the spine peculiarly serviceable, and they have been in common employment ever since.

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Burning moxa or cotton.

Striking case from Larry.

Issues, setons, cauteries.

Caustics to the spine.

In the rank of external stimulants we are to arrange electricity and voltaism. From the approach which these subtile fluids seem to make to the nature of the nervous power, as we have already observed in the Physiological Proem to the present class, and more particularly from their well known and extraordinary power of re-exciting irritability in the muscular fibres of animals that have been for some time dead, it was very reasonable to suppose that either of these stimuli might be employed with very great advantage: and accordingly we meet with them in very extensive and popular use from the earliest periods of their having been, if not discovered, at least

Electricity and voltaism.

* Journ. de Méd. Tom. LXVI.

† Recueil de Mémoires de Chirurgie, &c. 8vo. Paris, 1821.

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Treatment. Variously tried for a long period with various success.

reduced to scientific management; and have numerous reports of cases in which the former was tried, and in many instances with advantage, rather before the middle of the last century *. In various experiments there can be no doubt that both have been found highly beneficial, but, in various cases also, both have been made use of in vain, and in a few instances, with apparent disadvantage. To run over the list of those who have chiefly espoused, and those who have chiefly opposed their employment, would be useless. It is of more importance to know that a very great number of physiologists and pathologists who employed them most extensively, and particularly in the form of electricity, for the fluids are most probably one and the same, and who were at first most sanguine of success, gradually lost their confidence as they proceeded, and confessed their general failure; and candidly owned that, where for a time they promised fair and seemed to be of use, the benefit was delusive and merely temporary. And the author now alludes to the distinguished names of Franklin, Percival, Cavallo, Falconer, Quarin, Stoll, and Saus.

Have unquestionably been found useful: but sometimes disserviceable: and upon the whole rather discountenanced by those who have employed them most extensively, and at first with sanguine expectations.

A proper discrimination of electric power and of the state of the disease seems still to be wanting.

The fact seems to be that, even at this late period of trial, we are greatly in the dark upon the subject, and have not learned to discriminate the exact modifications of the disease, or the exact modifications of electric power in which alone this active stimulus may be employed with advantage: for that in both forms it has been occasionally of very high benefit is by no means to be disputed: and even at times when communicated by the gymnotus *electricus* or electric eel itself, of which a singular example is given in the Haerlem Transactions †; the patient having recovered the use of the affected side after a hundred strokes from the fish. Upon the whole, as it is a direct stimulus, it appears better adapted to the atonic than the entonic character of paralysis.

Cure effected by the gymnotus electricus.

More applicable to atonic than entonic palsy.

Hot bathing.

Hot and cold bathing are the next external stimulants we are to notice as applicable to the disease before us.

* Mémoires de l'Academie des Sciences, 1749, p. 40. Jallabert, Experience sur l'Electricité. Genev. 1749.

† Abhandlungen aus den Schriften der Harlemer und anderer Holländischen Gesellschaften. Band. 1. p. 109.

The stimulus of hot water alone is often serviceable in local palsy, and especially when produced by cold or damp; and in conjunction with the rubefacients and vesicatories we have just enumerated, or with friction to the part affected by means of the hand or a flesh-brush, and particularly when aided by terebinthinate or other essential oils, will usually succeed in restoring to the affected muscles their wonted power. But where the palsy is more extensive, as in hemiplegia and many cases of paraplegia, it has been more usual to recommend the stimulus of hot water in conjunction with various active mineral corpuscles held in solution by it; and hence the common resort of paralytic patients in our own country to the waters at Bath, Buxton, and Leamington. Hot baths of this kind are also a direct stimulus; and, as such, are found more efficacious in paralytics of atonic or dilapidated constitutions, than in those who have suffered from plethoric or entonic fulness, or at least till they have been lowered to the proper standard by a long course of some reducent regimen.

Serviceable alone in local palsy; and in conjunction with rubefacients often effects a cure. But in hemiplegia, and often in paraplegia, hot baths preferable that are impregnated with mineral stimulants and tonics, as those of Bath, Buxton, and Leamington.

Cold bathing is also a stimulant as well as hot bathing, but a stimulant of a different kind, for it acts indirectly instead of directly. The intention with which it is used is that of forcibly urging the mouths of the cutaneous vessels into a general entastic or rigid spasm in order hereby to excite a general re-action, as in the case of the first and second stages of an ague-fit, and thus to draw the torpid muscles into the common range of association. Dr. Cullen seems favourable to this practice under a prudent management. "Cold", says he, "applied to the body for any length of time is always hurtful to paralytic persons: but if it be not very intense, nor the application long continued, and if at the same time the body be capable of a brisk re-action, such an application of cold is a powerful stimulant of the whole system, and has often been useful in curing palsy. But if the power of re-action in the body be weak, any application of cold may prove hurtful." * It is hence only necessary to add that while

Cold bathing: an indirect stimulant. Medical intention.

Recommended by Cullen under particular modifications. Hence hot mineral baths best adapted to atonic, cold affusion to entonic paralysis.

* Pract. of Phys. Vol. IV. MCLXVI. p. 190.

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the hot mineral baths appear best adapted to cases of atonic paralysis, cold affusion or the cold bath may be employed with most promise of success in accidental palsies of the plethoric and the vigorous.

Internal stimulants:

The ordinary internal stimulants are the mineral waters we have just adverted to, camphor and other terebinthinate substances, many of the siliquose and alliaceous plants as mustard, horse-radish, garlic, and onions, and a temperate use of wine: the whole of which, however,

proscribed generally by Cullen and J. Hunter: but useful in the atonic form of the disease.

are proscribed in all cases by many writers of great eminence, and particularly Dr. Cullen and Mr. John Hunter: and which, if allowed at all, should be confined to the atonic form of paralysis, or never be commenced in any instance of entonic palsy, till the system has been sufficiently reduced for the purpose. And where this has been accomplished, such a class of remedies has often been found of essential service.

Acrid poisons,

Independently of these there is a tribe of medicines entitled also to the name of stimulants, though operating in a very different manner, which have long been boldly ventured upon by some physicians; and, after having for many years sunk into disrepute, have again been brought into favour, and are now in a pretty extensive scale of employment. I mean several of the acrid poisons, as arnica

as arnica montana, rhus Vernix, Nux vomica.

montana, or leopard's-bane, rhus *Vernix* varnish-sumach, and strychnos *Nux vomica*.

Mode of action and proposed object in their use. Arnica or doronicum first largely recommended by Collin;

All these excite the nervous system to great agitation and spasmodic action; and if the dose be increased, violent convulsions, alternating with tetanus, are sure to ensue: and hence it has been supposed that they may be rendered effectual in a restoration of motivity to paralytic limbs. The flowers of the arnica, or doronicum, as it was once called, were chiefly employed, though sometimes the leaves were preferred. Dr. Collin was much attached to the former in palsies of all kinds, and affirms that he has found them very generally successful. He gave them in an infusion or decoction, in the proportion of from a drachm to half an ounce, to a pint of the liquid*: and,

* Observ. circa Morbos Acutos et Chronicos. Tom. v. p. 106.

from his recommendation, they were, at one time, very generally adopted, were countenanced by Plenck, and Quarin, and experimented upon by Dr. Home*. The last tried them in six cases, but without much success; and they have not been able to maintain their reputation: nor, from the violence and uncertainty of their effects, is it worth while to revive them.

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The rhus *Vernix*, or varnish-sumach, is chiefly indebted for whatever degree of fame it has acquired in paralysis to the experiments and recommendation of Dr. Fresnoi. Much milky juice of this plant is so acrid as to blister the hands of those who gather its leaves, so that they are obliged to wear gloves. The leaves are employed in decoction, and in extract: and appear not only to act powerfully upon the nervous system, but by urine and perspiration; and hence the plant has a claim to be considered as an active promoter of absorption as well as a revellent, which may, perhaps, render it serviceable in some cases of paralysis from serous compression of the brain. Of its benefit in some other diseases of a spasmodic or nervous character, and especially in hooping cough, we have already spoken†.

Rhus Vernix or varnish-sumach. Recommended by Fresnoi. Its effects.

Most of the species of the rhus or sumach, contain a like pungent acridity in their milky juices, and hence several others of them have occasionally been employed for the same purpose. Dr. Alderson, of Hull, has of late preferred the leaves of the rhus *Toxicodendrum*, poison-sumach, or poison-oak, as it is sometimes, but improperly called: and, in many cases of trial, he has thought it of considerable benefit. He commences with half a grain of the powdered leaves which he gives three times a-day, and gradually increases the dose to four or five grains, till he finds a sense of tingling produced in the paralytic part, accompanied with some degree of subsultus, or a twitching or convulsive motion.

Other species of rhus possess a like power: hence rhus Toxicodendrum, or poisonous sumach, tried and recommended by Alderson.

The effect, therefore, produced on the nervous system

The effect produced by this is clonic spasm.

* Clinical Experiments, Histories, &c. Edin. 8vo. 1780.

† Vol. I. p. 559.

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Other acrid poisons tend to produce rigid spasm: as nux vomica and ignatia amara; probably on account of their bitter principle.

by the poison-sumach is weak or clonic spasm: but there are other acrid poisons which have a tendency to produce strong, entastic or rigid spasm, most of which possess an intensely bitter principle, and, perhaps derive this difference of effect from the tonic power of this very quality. Of these the chief are the stychnos *Nux vomica*, and the ignatia *amara*. Both have hence been employed in paralysis, and the virtues of both seem to be nearly alike; the former, however, has of late taken the lead upon the recommendation of Dr. Fouquier, of the Hospital de la Charité at Paris, who has tried it upon a very extensive scale, and apparently with a perfect restoration of health in many cases; and whose success has been authenticated by similar experiments under the superintendence of MM. Magendie, Husson, Asselin, and other pathologists. He gives it in the form of powder, or alcoholic extract: four grains at the first, and two of the last are a dose, and may be taken from two to six times a day. He also employs it in injections. In half an hour after administration the paralyzed muscles have, in various cases, begun to evince contraction: and, what is peculiarly singular, while a spastic contraction is determined to these, the sound parts remain unimplicated in the action. A frequent effect, unquestionably dependent on the bitter principle of the plant, is that of increasing the appetite, and diminishing the number of the alvine evacuations when in excess. Sometimes it produces a temulent effect, and occasions stupor and a sense of intoxication, and, when rashly administered, general tetanus with all its train of distressing and frightful symptoms. The most powerful form of this medicine is its alkaline basis, to which the French chemists have lately given the name of strychnine. It has hitherto been chiefly used through the agency of clysters *.

The former of late extensively employed by Fouquier: in many instances apparently with permanent success.

Preparation.

Effects.

Strychnine.

Variable results.

Like all other powerful medicines in their first and indiscriminate use, the nux vomica appears sometimes to have been highly beneficial, sometimes mischievous, and

* Remarques sur la Nux Vomique considerée comme Medicament. Par F. M. Coze, &c. Journal Universal des Sciences Médicales. Nov. 1819.

sometimes to have produced violent effects on the nervous system, without an important change of any kind. Dr. Cooke has collected a variety of cases in which it has been tried in our own country as well as in France, and this seems to be the general result. The present author has tried it in various instances, but has never been able, from its tendency to temulency to proceed much more than half as far as some practitioners have gone, who have gradually advanced it from four grains of the powder to twenty-four three or four times a-day. In the case of the late E. Sheffield, Esq., of the Polygon, Somer's-Town, Mineralogist to the estates of the Duke of Devonshire, and who is well known to have been one of the best practical geologists of his day, the author commenced with two grains alone of the powder given three times daily, as this was a hemiplegia following upon a second fit of atonic apoplexy, with a general debility both of the mental and corporeal powers, the patient being, at the time, rather upwards of sixty years of age. This dose occasioned no manifest effect, and on the third day, August 21, 1819, it was gradually increased to six grains. It now produced a powerful sense of intoxication, but with clonic agitation instead of a tetanic spasm, of the paralyzed leg and arm, and great heat down the whole of the affected side. The powder was continued in this proportion for three or four days, but the stupor and vertigo were so considerable and afflictive that the patient could not be persuaded to proceed with it any longer, and it was in consequence suspended. On the ensuing September 1, he was evidently getting weaker, and recommenced the medicine at his own desire; the dose was gradually raised from four to six grains three times a-day: the same clonic effect was produced with the same sensation of heat through the whole of the affected side, but without a sense of intoxication. The dose was advanced to eight grains, when the head again became affected, but without any permanent return of muscular power or sensation in the palsied limbs, or any other effect than a few occasional twitches and involuntary movements. Mr. Sheffield could not be persuaded to persevere

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Illustration.

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any farther, and the medicine was abandoned. He continued in the same feeble state for about three months, when he fell a sacrifice to a third apoplectic attack apparently of a much slighter kind.

Apparent conclusions to be derived from the ordinary effects of nux vomica.

I have stated that this was a case of atonic affection, and hence, there was no opportunity of giving full play to the power of the nux vomica. But so far as I have seen, I think we may come to the following conclusions: First, that when only small doses can be given without seriously affecting the head, as in cases of great general, or nervous debility, the effect is a clonic instead of an entastic or tetanic spasm. Secondly, that under this effect it is not calculated to do any permanent good, and often produces mischief. And thirdly, that it is most serviceable in entonic hemiplegia, after the patient has been sufficiently reduced from a state of high energetic health, and especially energetic plethora, to a subdued and temperate state of pulse; in which state it may very frequently be employed in doses sufficient to excite strong or entonic instead of weak or clonic spasm; and we may hence account for its opposite effects in producing and carrying off tetanus, as already observed under that head.

Hence obvious that nervous agitation in due proportion is often of peculiar advantage: whence the disease has been carried off spontaneously by various kinds of mental emotion; a stroke of lightning and fever.

From this history of treatment, it is obvious that nervous agitation, proportioned to the mode of the disease and the strength of the patient, has often been of peculiar advantage; and hence, we are the more easily prepared for hearing that palsy has occasionally been carried off suddenly and spontaneously by a violent fit of mental emotion, as of anger* or fright†, of both which the examples are very numerous; by a stroke of lightning‡; and by fevers§. Nor can I do otherwise than think that one of the most rational and efficacious means of cure in many

* Camerar. Memorab. Cent. v. No. 30. Paulini, Cent. III. Obs. 89. Schenck, Observ. Lib. I. No. 182.

† Diemerbroeck, Observ. et Cur. Med. Loeffler, Beyträge zur Wundarzneykunst. Band. I.

‡ Wilkinson's Case of Mrs. Winder, 8vo. 1765.

§ Act. Nat. Cur. Vol. v. Obs. 64. Samml. Medicinischen Wahrnemungen. Band. VI. p. 152.

instances of paralysis, and especially where no great inroad has been made upon the general strength of the constitution, would be a journey into the Hundreds of Essex or some other marshy district, for the purpose of obtaining a sharp attack of a tertian ague, which would most effectually, and I apprehend at the least expense, give us all the advantage of entastic spasm and re-action in regular and repeated tides, that we could wish for, and which have already appeared to be so desirable. In treating of the tertian intermittent, we observed from Dr. Fordyce, that it has often a tendency to carry off a variety of obstinate and chronic diseases to which the constitution has been long subject, and to restore it to the possession of a better and firmer degree of health. And where paralysis is capable of removal, there seem to be few complaints on which it is likely to operate with a more favourable issue. The author has for some time been waiting for an opportunity of making the experiment, and at present merely throws out the hint with much deference to the medical world at large.

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On this account a tertian ague might probably prove highly efficacious, and a journey to the Hundreds of Essex effect a cure.

Collateral opinion of Fordyce in confirmation of this hint.

In a few cases hemiplegia is said to have ceased spontaneously by the mere remedial energy of nature, and without any apparent cause of cure; in one instance after ten years' standing, and accompanied with loss of voice*. And in a few cases of paraplegia from external injury to the spine, where only one or two vertebræ have in a small degree been displaced from their proper position, the same instinctive or remedial power has alone produced a cure or greatly alleviated the mischief by so far thickening the growth of the bones immediately above and below that the chasm has been filled up, and a line of support restored. The best artificial means of obtaining so salutary an action is by a free and laborious process of friction, vellication or shampooing, with such intermediate exertion or exercise as the patient may be able to take†.

Hemiplegia has sometimes ceased spontaneously, and after many years standing.

Paraplegia has sometimes received a natural cure.

* Bresl. Samml. 1721. p. 406. 503.

† See especially, Shaw on the Nature and Treatment of Distortions to which the Spine and the Bones of the Chest are subject. 8vo. 1823.

Gen. VIII. Spec. VI. Carus Paralysis. Palsy. Treatment where palsy is local and produced by fumes or other minute divisions of metallic particles.

It is only necessary to add further, that where local palsy has been produced by the fumes or minute divisions of lead or other noxious metals, it is almost always accompanied with symptoms of colica *Rhachialgia*, or Painter's colic, and is to be remedied by the treatment already laid down under that disease*.

* Vol. I. p. 194.

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